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# N O U R A T H A R

## *The* FINE ART *of* LIGHT COLOR PLAYING

*by*

MARY HALLOCK GREENEWALT  
HOTEL DU PONT, WILMINGTON 99, DELAWARE



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**BY**

**MARY HALLOCK GREENEWALT**

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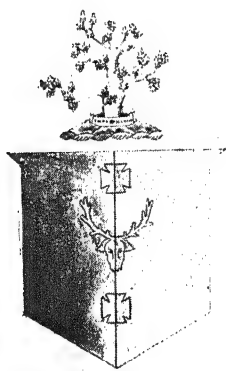
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THE FAMILY CREST



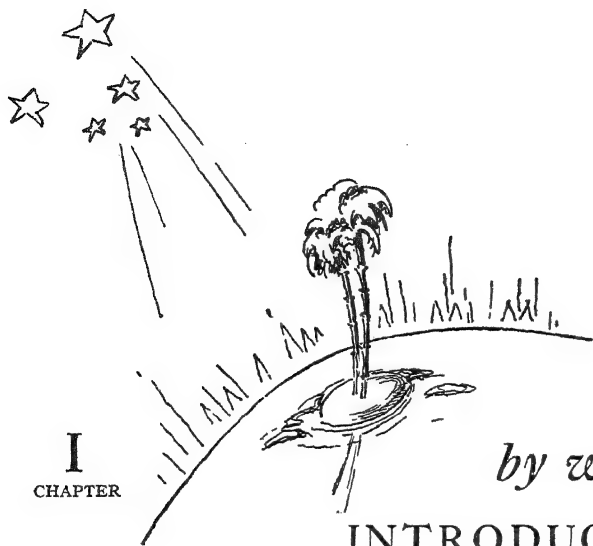
MRS. MARY HALLOCK GREENEWALT, FROM THE PAINTING BY THOMAS EAKINS  
WHOSE "CLARA" WITH WHISTLER'S "MOTHER" ARE THE ONLY WORKS OF  
AMERICAN ARTISTS IN THE LOUVRE IN PARIS. PAINTED IN 1903, NOW IN THE  
ART MUSEUM OF WICHITA, KANSAS

# N O U R A T H A R

*The* FINE ART *of*  
LIGHT COLOR PLAYING

MARY HALLOCK GREENEWALT

<sup>27</sup>*The Arts are all the Sciences*<sup>99</sup>



## I CHAPTER

# by way of INTRODUCTION

SINCE every subject has its irrelevant antecedents, I might quite properly and even with a certain logic begin this writing with some silly bit of doggerel of our school-house days—you remember them in our birthday books?—such as:

“In the wood box of your memory,  
Consider me a stick.”

I pray my protecting stars this prove  
no prophecy. Or better yet:

“Roses are red, violets blue,  
Sugar is sweet, and *so are you*.”

No matter, however, what the cajolerie to tempt even your affectionate attention, nothing will suffice me but a clear, simple, succinct and understandable posing of my subject.

The task is a difficult one. The matter lies well within the realm of a conspicuous beauty as a new form of expressed feeling; and aesthetics, at its highest, deepest and best, has

a way of bundling the myriad faceted *all* into a *one-ness* equalling, if not beggaring, formal philosophy and even metaphysics in the difficulty of its right presentation by word for record. As for my very life will I stick to the definite, the measurable, the visible—to fact, the producing means, the apparatus, the methodical. To the pulp of the fruit there is the seed, the fruitfulness of the seed, the tree. The immeasurable in the glory of fine art will gleam and glint there-through.

I know my subject. None other knows it so well. She speaks best who apprehended something as to the becoming from a-before its concrete beginning. There is the grounding preceding the conception. The mother is part of the offspring ere its being. The author anticipates ahead of the right result.

But even as the full-uttered creature may or may not “let down her milk,” I pray the channels of my brain to open, my hand to comply.

In all bravery I begin.



# نور العين

LIGHT OF MY EYES

## II

CHAPTER

## NOURATHAR

THE entire history of this world, up to the present century, shows the full-fledged creation and practice of but five fine art means of expression. One can linger long and lovingly—"smack one's lips," "lick one's chops"—over the infinite variety of delight conjured up by their very names: *Music*, MUSIC; *Poetry*, POETRY; Painting, Sculpture, Architecture.

They are so few because the media which may be used for the purpose are so extremely rare. These, like sound, like paint, must be sufficiently fine, comprising, flexible and various as to allow of being caused to match in their interplay of values, qualities, quantities—in a wide capacity—the infinite finenesses, variousnesses, and shadings held in the values of human feeling. The fact is self-evident.

To these five mentioned fine arts, I have, by dint of infinite labor, obstinate determination and tears of

blood, had the hardihood and temerity to add a sixth.

The necessity for coining a new word is one proof of invention, of true origination. It is a testimony to the *first* appearance. More than one such occasion will be noted in this work.

The mother names the child. It is in a manner of speaking a proof of the parenthood. It is, therefore, I who have named this fine art since, without let or peradventure, it is I who have conceived it, originated it, exploited it, developed it, and patented it. I have stayed with it until its operability was put into wide practice; its high value proven beyond doubt or cavil. I know all that has been offered before and since. I make no mistake in the assertion that this, the sixth fine art to come into being, is of my creation.

After much seeking of likely roots, many languages searched and sug-



gestions thrown aside, I determined on calling it NOURATHAR. The name consists of two Arabic roots. "Nour" stands in its way for all light as against any specific light such as lamp light, candle light and so forth. "Athar" suggests essence of, flavor of, influence of. Penetrating and broad are the connotations carried by these two roots, separately defined and, as happens here, jointly considered.

This, the sixth fine art, and the "fine" cannot be overstressed to come into existence, comprehends the means for practicing a method of utilizing *light* as a means of human expression. The infinite values, qualities, quantities held in the spectral ray, the root of all hue to the eyes, no matter how seen, are, in this art, so mobilely handled, flexibly controlled as to suggest to human feelings the showing forth of their colors, too. These through this play are created, are caused to be. They are sensed, matched, enhanced, contrasted and combined.

The fine art lifts the physics of light through the physiological, the psychological up, up into the philosophy of feeling. Call it aesthetics, if you will. This is done by means of an instrument. It is performed on by an individual. The purpose is that of showing through the light-color shades and tints which it may be made to produce, at will and from moment to moment, something of what transpires within the artist, which he wishes his audience to sense and feel. The player spans in this way and through this medium the space breach between the feeling centers of himself and those of his audience. Setting a conception in

*peerless light beauties* forth, in incomparable loveliness, he breeds by this means more of the common understanding so valuable between man and man.

The disorderliness of color is through this art rendered orderly. It is measured, reintegrated, combined and controlled. It may be arranged and in a manner so exact and fine as to allow of sequences made of and through it to be noted down, registered and the timing marked for duplication or re-playing on the instruments constructed for the purpose.

The form of its being, its various instrumental necessities, its phases and excellencies of practice will be explored and laid out in the following pages.

Pun not awkwardly so nice a name into anything like neurasthenia, as was once done by ill will and ulterior motive. The root "Nour" is a doughty one. It has made its way in more than one related tongue. In several lands and climes it continues its way from there, where the very incubation of civilization began.

It has played a gamut fine. Somewhere the meaning of light got into that of fire. A change of vowel, and behold! "Nour el nar"—light and glisten and sparkle of fire. In another country, not too near, as sailing vessels go, the root spanned into another form of light and fire and sparkle. It became a part of "Koh-i-noor"—mountain of light, the mammoth diamond.

In Persia there was "Nourmahal"—light of the harem. In India, "Nourjehan"—light of the world. From all light it spanned to standing for glowings of soul—"Nour-eddin," light of religion.

# عطر النور (نور عطر)

## الفن الجميل لثلوين النور كاداة تبير عن الشعور الانساني

ATTAR AL-NOUR (NOUR ATTAR)  
THE BEAUTIFUL ART OF COLORING LIGHT AS A  
MEANS OF EXPRESSION FOR HUMAN FEELING.

Then! ah then! Thou light of my being! Thou light of my eyes! Thou light of my soul. It gained currency in the gold of love-making: "Nour-Hayati, Nour-Auni, Nour-rouhi."

Sad that speech of love is not only various but devious. I am reminded of the man—alas! He was an American, who proceeded towards a young woman of interesting foreign birth by announcing: he had "*always wanted one of those.*" He for sure dared wonder, like many another man before and since, why the course of true (?) love didn't run smooth.

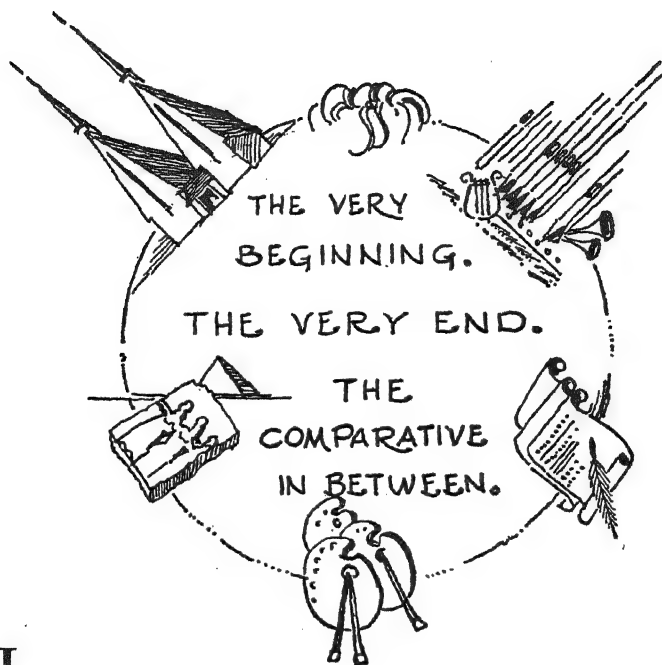
"Athar" stands for perfume, "... and spice, and all things nice." A famous Persian of long ago, Ferid Eddin Attar, got his surname from

the fact of his father having been a spicer. Perhaps there was more within. "Eddin" means religion, spiritual belief. The "Attar" in his name may have, with the "Eddin," carried the idea of essence of religion. For "essences," notably of flowers, are of the "things nice" above mentioned.

"Athar" also has a wide field. It can be used in the sense of influence of any epoch-making book or work: Attar of the Bible—or of a rose.

The light ray is, in its way, a near essence fine. Nourathar is, therefore, essence of an essence: light of very light, soul of very soul.

MADE NOT BORN.



### III

CHAPTER

**M**EANDER amiably with me a stretch, and for a spell, down the lane of the comparative. For short of the absolute, we can but compare.

Range the five fine arts, long in practice, soldier-like, one after the other. Range them forwards. Range them backwards. Why forwards? Why backwards? Because so it is easier to get the crisscross of the collective song they comparatively sing. Well then:

*Music, Poetry, Painting, Sculpture, Architecture*  
*Architecture, Sculpture, Painting, Poetry, Music*

Having placed them into these "échellons" we can the better speculate, and mayhap charmingly—but not too long since it is quasi-specu-

lation—on significance carried by their interlacing features. There are various outlines they limn together.

As for example, music, the *last* to appear, utilizes a medium: sound—a probable *first* to emerge out of the void. Whereas architecture, certainly the earliest to arrive, had to await the solid earth; that, it is said, was the later separated from its liquid sea. Let me not turn awkwardly humorous. Surely stone and rock gave water something to shape on.

The media, the above fine arts use, are, crudely put: sound, pigment, clay, stone.

A rough chronology of these may be excusably ventured: First, sound, then pigment, clay, and only afterwards the solid, the hard.

I know, I know what myriad eons, countless eras passed between these and the coming of man. Ages more went by ere this making of fine art. I know how long it took *that* brain of man to develop to the point where *it could turn around and improve on the antecedent that created it*. There is more than just mental gymnastics in the points to be exposed.

Music is so recent that we, now living, can see painting full grown and moreover getting overripe, while it (music) was still in its swaddling clothes. Shelter spot of beauty form (keep in mind the hive and nest) early followed a developed body. Modelling soon came next.

We now see the crisscross of one sort of interlacing. The *later* the development of the art, the *earlier* the appearance of the medium it uses. Sound first—its music last. Pigmentation next—and next earlier painting. Sculpture needed the flexible plastics. Architecture the *first* to develop awaited the *last*—the substance hard.

Let me repeat that we are rating in incalculable periods of our time the coming of these media; and that there was much before and in between. Still greater spans went by before the human body got sufficiently unfolded to turn around and use, as a means of its own expression, the forces that early went to make it.

Other comparatives help in proving the point. The *finer*, the more *flexible*, the more *penetrative* the medium the more recent the causing it to meet expressive ends.

This is sufficient to the fact that progressively the later the making of the instrumental means the arts use, the greater their demand for intri-

cacy and capacity for subtlety of showing also. Whereas the hands may be sufficient in forming a shelter, the family of musical instruments shows a praiseworthy height attained within the mechanics of their construction. The waxing in the fineness of the medium used begets an increasing admirableness in that form of the organic construction their practice begets.

It is also true that the finer the *texture* employed, the higher reaching and so more exigent the *technique*.

Beauty—I know, I know—makes no bones of the comparative. All fine art in its message digs deep. It levels all the means taken as simply belonging to loveliness in communications of what transpires in the inner being.

Yet, it is natural to hold that the *rarer* the medium, the *deeper* does it reach towards the center of body tissue. In every case the human organism conditions the form—in the fine art.

There is much quoted reference to the printed word that light became first, out of that nothingness out of which the universe grew. That it had still finer antecedent is true. But see how well a means of expression that makes use of light fits in with the sequence broached. We might indeed say that we were bred of light before we were born of our mothers. Yet, here it is the latest to be caused to speak an innermost feeling. It fits. And the very fitting brings out much to set forth.

Light is more impalpable. It is more ethereal. It is the least gross of the elements the fine arts use. As ether is an upper air, so is light not

so rough as sound. Its early being testifies to the fact that it hooks deeper to within the immeasurable out of which the measurable in our bodies grew. It penetrates further but, I grant you, in gentler fashion into the corticles of the flesh. With subtlety it infiltrates deep to within the still farther tissues of the human form divine.

As a finest constituent it exercised a result early on the convolution within convolution that was to become *us*. Cosmic forces created this substance. In the hands of man it may now turn around and make more plain a different cosmic way. Till, granted the artist at work, this base of experience, gotten through light, may be lifted up into a guise for a god to see.

The extreme fineness of a medium for use early appearing must, through that fact alone, delay an eventuality. It makes more difficult the imbuing with a capacity for exchange in feeling. Since feeling, so far as we know, is immaterial, there is no jolt in the knowledge that light, so nearly substance lacking, may be made to invoke various qualities, values, quantities within the incorporeal, the sensory in man.

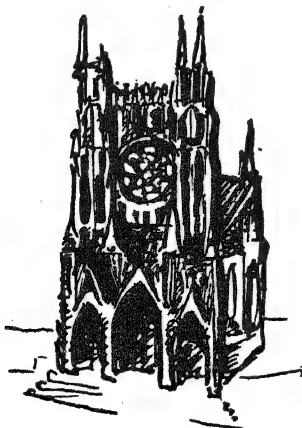
It follows as the night the day, that to use light as a means of human expression requires the finest of instrumental means for so playing it. It requires, moreover, a most exigent spot within which it may be, in this manner, made to be seen.

To lengthen the shadows of the fine arts, as we have done, forwards and back, increases the understanding of their general significances. Such inspection makes for a help to their continued high development and support.

Clarity of mind grows. It is well to feed it on facts widely surrounding the particular subject before it. The clearer the general comprehension the better. It saves time. It makes for a stepping secure. These comparative notes do not represent time lost.

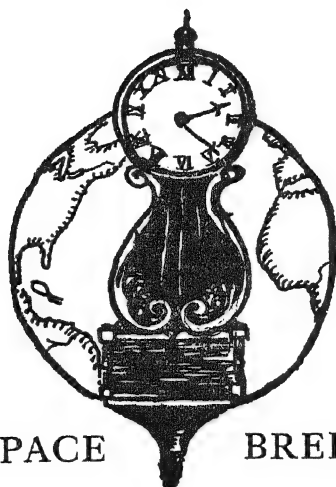
The quasi-speculation is worth while to a compendium of the fine art of light-color playing. Through, to the very end of the chapters, the pertinence will shine.

Begrudge not the time of reading. The art is one that no other age could have spawned. It is the last word in the up-to-date. Though its soul be infinite light, its sinew, nevertheless, is science.



## IV

CHAPTER



BORN of SPACE

BRED in TIME

**S**HALL we say in fashion picturesque that the five fine arts long established use each but one or the other of the two prime phases of this "sorry scheme of things entire": space or time, whereas this youngest builds through both? Here is what is specifically meant. It is that Architecture, Sculpture, Painting unroll their meanings through courtesy of *space*. In them the result is seen all at once. Music and Poetry exist by virtue of *time*. Their content is unravelled from moment to moment. Memory links the chain of the conception that is made up of like measures in duration stressed successively.

The fine art of light-color playing, used as a means of human expression, is created on the other hand through both categories: *space and time*. It is seen by virtue of space and felt through successions that are timed. In this way the comparative may be pushed still further, and the base gets broader.

Light rays in this art are seen, not in their issuance from a source point, but by refraction from the surfaces they strike: this is of space. But the form of the art the speaking through

such owes its being to what it shows within moment succeeding moment. Its appearance is of extension, its expression is through time. So it can exist but by both the mysteries above mentioned. Nourathar is born of space; it is bred by the timing.

Great difficulties were met through this rigidity of surfaces having to be acted upon via the fluidity of time.

To repeat: This manifestation of light play, on and through exteriors, gives forth its progressing message or messages by light changes made, like poetry, like music, from *moment to moment*, by favor of succession.

It took "thinking a thousand times" to arrive at this difficult coordination of a message in succession properly transmitted via extension on and through surfaces.

Time. Space. These are big words. Their range covers creation itself. The orbits within these largenesses are small indeed that are played through by the activities mentioned. But it is interesting that they result either in one or the other. Only the latest one partakes of both.

Simply said, Nourathar speaks through the miraculously beautiful rays being caused to appear in an expressing *change* of values, qualities, quantities, extensions—of their colors, as well as in their shades and tints—subject to a certain critical timing. In this way it is of the seen without the artist as well as the moment to moment felt within him. The wide meaning as to this kind of the within will be made plain later in this writing. It carries its own deep import.

Incidentally, perhaps it is still another dualness that makes the pre-eminent fitness of this medium for fine art. High authority exists for the belief that the phenomenon of light is both: minute particles bombarded off into space and wave motion also, the material and immaterial in the one. Who knows, perhaps it is this that so well fits it to the spatial and temporal as well.

Though seen outside us, it is yet felt through a kinship to that which transpires next to next within us. This has a part also, physiologically speaking, as we will see later. The facts are worth the exploring and exploiting as fully as the space allows.

#### *The Outward, the Inward*

So we find still another comparative to add to the list. It is that of the outward, the inward. Architecture, Sculpture, Painting noticed the surfaces posed their meaning outwardnesses. Poetry and Music and now Nourathar, through their temporal nature, dig inward for the cause of their form: their timing. It is with them an orderliness based on recurrence, and this recurrence is of a particular time entity or the attention cannot be held.

These fine arts, it can well be claimed, borrowed their kind of throbbing from the suggestions created by a mechanics within the human being's very body. Does not the entire brain and all that it now or ever has carried beat in a measurable and measured recurrence against its skull? Is it not of a particular sort? The intimation is plain. In such hinting lies this still other phase of the comparative. It is not the all, but one of the many "halfway houses" across which the fine arts pass.

#### *Recurrent Timing*

Once conjectured, the truth of the surmise touched on above was more or less plain for the mailing. For recurrent stresses, recurrent timings in nature have their varying distinct and established entities. One could choose between them or rather among them. It takes Saturn a regular twenty-four years to go around the sun. Similarly all other celestial spheres have their own definite periodicities. The hour chimes. In so doing it occupies the same time as the next. It is another sort of a continuing rehashing. So the stresses of music, of poetry, and now the measures of Nourathar, all also revolve about a certain limited horizon of attention. It is so distinctive, as I have said, that *the attention cannot be held* under anything but its own particular scope of time's again and yet again.

I will not now go into just what these special spans of time measure are by the metronome or clock. I say "revolve about" for there is a leeway. It is roughly that from a little below the sixty beats per minute to a little over ninety to the same

moment. Should *this art*, like these others made by timing, not abide by this, *it cannot hold the attention*. So entirely wedded are we to this cycle of variation as to rate of the pointed measure which the timing arts use. Only within these limited horizons of attention, as we have called them and using them, can this one of light-color playing used as a means of running expression also attain its aim. It is, laid on this kind of time measure, held in common that the play of light is ordered. This much it has in company with poetry, music and many other activities of man. In passing the media, which the fine arts use in a chronological review, we had reason to remind of physics and geology. We can now hint as having come to physiology.

Single words, used but in their suggestions here, may well point to the vastness of the comparative fields that could in this the more exhaustively be developed. As to the media: we have touched on chronologies suggesting fineness and coarseness, relative penetration, surface character, and the inwardly suggested; the plastic, the flexible, the instrumentalities used, the technique of practice. There is also the interplay of these one with the other.

We have nibbled then with not much more than single words at physics, geology, zoology, physiology, philosophy, and, if you please, metaphysics. Topping the roost can come aesthetics. Why have we made this quick surveying? But to point out to that miracle of miracles. This is, that such weight-carrying speculations touched on but for a moment, and all too easily, can to one facile with the pen be logically touched on in a brief paragraph or two, *thanks*

*to that saintly army of scientists that are now or have gone before.*

Why aesthetics *tops the roost*? Because the artist may arrive almost subconsciously at that which it may take a tome of philosophy to explain and then not so convincingly.

The deeper import of the fine arts can well prove of value to science and the scientific. We should speculate as a road to a possible unwittingly fallen on truth as far as speculation can take us.

### *Mechanics of the Body*

Delve into the mechanics of any fine art and you discover the human body en route. It must be so or how could, through the fine arts, human understand human. So, though the medium appear early, the practice of expression through it awaited perforce that which in it was imposed by developments of the man himself. The timing is no exception to the rule. Whether the play choice is made through the subconscious to fit in with these factors and only afterwards the inner reason be apparent is not an essential of the fact.

### *Human Expression*

I see that in a biographical sketch of the author in the *Who's Who in America* that the word "human" is left out of the phrase: "light-color play used as a means of *human* expression." I must take issue on the point. There is a distinction to be made between expression, whose progress is conditioned or suggested by some functional parallel jog within the mechanics of the body itself—such as the throbbing of the entire brain up against its roof—and that which is not. When the former is the case, the result might well be



called *human* expression. A detail of ornamental design, a decorative freeze of conventionalized leaf or flower could be expression but not "human expression," whereas expression hitched even, though but by suggestion, to the mechanical centers of one's being through a fixity of habit not too fixed is of the human for the human. It is from the interior of him, himself, to that of the others getting note of what he does.

Let me repeat that in the three earliest fine arts to appear the eyes ordered. Those in which recurrent equal divisions of time are the basis to the form dig and delve inward to *within* the physical man for their guidance. The mechanics of their form is shaped by the within of him. This latest one is both from the without and the within.

This sort of delving has, at the moment, a great, indeed, a serious importance. The age is what is known as a material one. It is occupied with the matter of things. Great and unhallowed liberties are taken with the finest in expressed feeling. And alas! for the sake of money. Those taking up cudgels in behalf of painting, poetry or music look at the scientist and glibly shake "soul" in his face. This "soul" which to them excuses a continued and ardent following of beauty—is it altogether an attribute in the fine arts separate and distinct in part from scientific reason? Is it just like the aureoles shown as floating above a saint's head—apart from his form? Apart from, yea, the physiology of his body?

Study of the fine arts may lead to unexpected discoveries valuable to science. And it may easily be a discovery of that which is generally not

thought of as soulful. In other words, research suggested by these arts may well show that the fine art aureole is not altogether disked over and separate from the body of the man. It may show that it has its connections with himself *in the flesh*.

It is quite possible, indeed it is more than probable, that thorough study in the arts of expression may and do stimulate the unravelling of that which is useful to the strictly scientific.

#### *A Digression into the Mathematical*

Out of my researches into the physiological basis of rhythm or beat (see "Pulse and Rhythm," *Popular Science Monthly* for September, 1903; "Pulse in Verbal Rhythm Poet Lore," for the summer of 1906), there grew for me an interest in our concept of time as a whole. (See my "Time Eternal" in the *Metaphysical Magazine* for November, 1909.) There seemed to me reasons for supposing that it was the *mechanics of the human body* that caused our way of thinking of time as being one dimensional. If that is the case it is fair to suppose that perhaps the early protoplasmic organisms knew not our time. It could explain how we happen to think of a sort of time not really existent outside us. It could also pose the possibilities that inhabitants of other celestial spheres do not think of time as we do.

It did also once occur to me as a possibility, remote and difficult, that directing the rays in certain ways could yield novel results, outside their legitimate province of expression. They might be made to collide into nuclei seen as hanging in space as a suggestion of created form. Perhaps something like a comet, starry clus-

ter, the nebulous of course, and other embryonics of form. All this was very difficult. I contented myself with the nuggets of emotional groupings, as all sufficient for the time. These were clusters in values of feeling.

But since I am digressing will you permit me to meander off the line of the comparative still further in the direction of the absolute? It is outside the province of fine art but the mathematical does so dome every concept. One can speculate unendingly and engrossingly under its tent. For those who like to think in the realm of higher mathematics shall we wield a speculative pen a good deal for the fun of it? Well then:

We think of time in general as one dimensional taking us forwards and ultimately upwards. Space is three dimensional to our senses at least. Light in the practice of this fine art strikes all walls, rebounds therefrom bombarded off within a prisoning cage. These minute particles of matter, with their wave motion, too, get propelled without end. They hurtle, they collide. They leap from here to there. They cavort in a three-dimensional projecting deployed more or less interactively out of the four sides or more of the interior within an enclosure, specially constructed for their continued going.

I am not an expert in higher mathematics. The painter of my portrait, cut of which is shown as the frontispiece, was. I remember on going for my sittings seeing him reading some work in this difficult realm with as great interest as another would read a novel. He, it was, who told me, as though conversational, as though

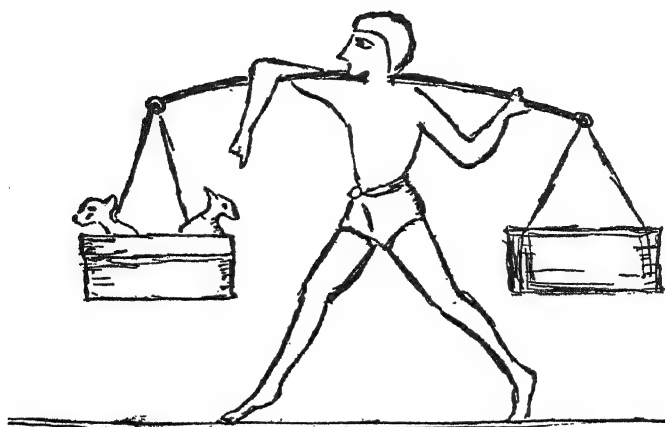
as a matter of course, that one could not tie a knot in the fourth dimension.

This higher realm of figures, I understand, is a good deal a matter of motion. One that is very fine. Perhaps one could say vibrational. It is said, at all events, that a three-dimensional motion may create a two-dimensional figure. The supposition follows that a four-dimensional motion might beget a three-dimensional body.

As the non-mathematical is made to understand, this four dimensional is a matter of motion. Moreover, within it, so it has been said, a knot may not be tied. It must be, therefore, that a more than three-dimensional motion holds in itself no defeating of any unhindered unravelling. How could a human being emerge in his three-dimensional form if he had to have his parts intertwined, tied up into physical knots? That he may get mentally tied up into all sorts of difficulties, not to be unravelled after he gets here, is a bird of a different feather. No levity is implied (?), "Believe it or not."

Is it any wonder that man in the comparative scale of his fine arts first expressed through shapes and only later turned to the vibratory? Were we first naught but a many-dimensional motion and now in our three-dimensional bodies are recognizing a more than single-dimensional restirring within us, such a one as may have taken place in a mother's womb? Does this latest fine art have a bit of this activated remembrance?

No matter how far afield we may roam, there is . . . (kindly turn to the heading of the next chapter).



## V CHAPTER

### AN INHERENT LOGIC BACK OF THE ART

THIS art of which I write is now in practice. It is a very widely, though *very crudely*, exercised activity. It is in use in well nigh every large theatre throughout the world as well as in many smaller auditoriums, places of concourse, as well as some churches. Its continuing fruitfulness of usage carried its own sort of logic, and in a way needs no other. It has had a monumental share in creating exchange and has brought much industry into life that would otherwise not have been. It has furthered many parallel initiatives. The proof of the pudding has already been made via the eating. It is now footless to ask for the reason of it. This is not as awkward as to demand the logical in the climatological. Or to expect much else than prudence in jurisprudence.

Although there is no frantic call to logic to come and officiate when one conceives a new idea, the reason of it and its proof is likely to appear

later. It is possible to see now that Nourathar has followed a logical sling in its course. Correct and accurate thinking has governed its being made to be. Like the other fine arts, as for example, it roots in nature. It branched into something entirely different from the existing order of things. However, when it was made an apparition that could be obedient to aesthetic will, and that could create its results, it then becomes unlike *in kind*. It gets to be all but unrecognizable from the primal origins.

As fine art it is artificial, albeit as artificial as the orchestra is so, though sounds be made in nature. It is just as different also from that it had to go on as this parallel just cited. It becomes by man of man for man. It leaves the natural behind. The accidental incidental nature part of it gets completely superseded. It becomes changed from this: different in *kind*, in *purpose* and in *degree*. It then has an entirely new objective.

### *Background of the Arts*

To exemplify the "natural origins," as these are here meant and used further, we can point to the fact that to sing was first an animal cry. Painting and sculpture were a copying of things seen till they became inspirations of themselves. And so it is, it is true, that the influences of light intensity changes on the creature, brought about in his long development by the movement of the earth about the sun, laid a phantom groundwork for this new kind of common understanding between man and man. The basis was laid by starlight, twilight, daylight, sunlight. These were backgrounds but of the slightest. Just as significant as these, if not more so in the art, were the interactions *grown eons* later common to man and man in the *mechanism* of his body; they were another point to the art thing still beyond them. But these do cause the beholder to understand and feel what the player of the art is evolving. These do tie the audience to the artist. The aesthetics of the fine art of light-color playing is hitched onto even the physiological inside us. The echoes of all these varying backgrounds exist. But in the practice of the art they are present only to their degree. They are one phase of the logic notwithstanding. It is nature plus incalculably much else.

The embryo, I daresay, felt a waxing bravery on the rising of the sun and was quieted on its going down. But the rudimentary germ is not more different from the animal grown than is the slow rising light of this orb from the spectral ray played for a sort of human speech. In a fullness of its colors, its shades, its tints; in a timing obedient to pulse, it is a

matter new to creation of world galaxies. As such it is possible only to the highly developed human mechanism, and to that his kind of creating makes.

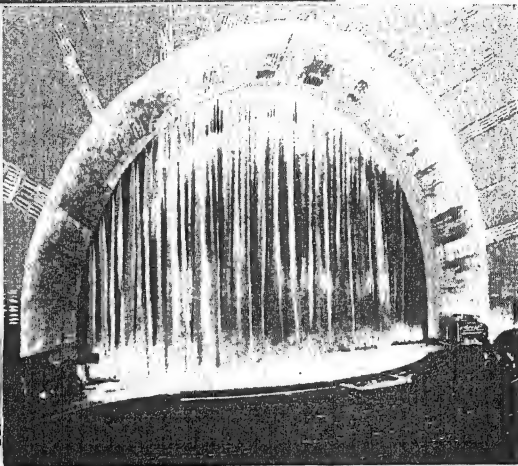
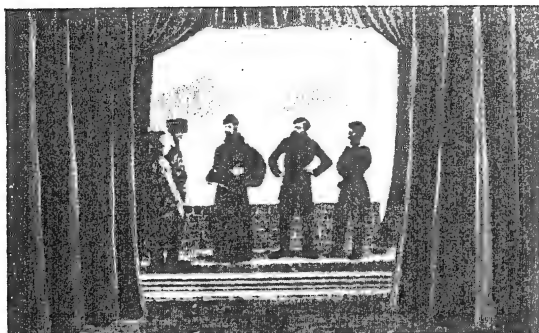
Moreover, the beauty inherent in the material itself, inherent to the ray color, to the medium alone, as presented through the means to making the art, is way beyond its showing in the natural world. Try and hear the 'cello sounds in their fullness and orderly arrangements which are audible in winds weaving through in the waves and trees, or in the rhythm of the spheres for that matter either! So different is the color ray as seen in this connection new.

The fine art of light-color playing is artificially specific. It is so, just as the orchestra is factitious though sounds be made in nature. When an artist sitting at the instrument created for the purpose makes, let us say, darknesses solely for their Nourathar result, and uses for this the colors also; when he does this in an interior entirely foreign to the outdoors, he is creating an outcome different in kind as well as degree from anything made *prior to his becoming* or now by and of the outdoors.

Over and beyond all other argument—the artist makes the logic of his performance. It is a logic that is sound, no matter how you argue it. It was not before him. It will continue after him. And this is so, both by the influencing through it and by its being.

### *The Endurance of the Art*

The persistent enduring of this art since its starting is in itself a proof that it does enclose a consistence in



UPPER: BLACK VELVET CURTAINS OF NOT SO LONG AGO ARE A PROOF OF THE THEN NON-EXISTENCE OF THE ART OF LIGHT COLOR PLAYING. LEFT: REFLECTIVE SURFACES AND LIGHT COLOR PLAYING WITH ACT, SONG AND DANCE. RIGHT: AN AUDITORIUM WITH CURVED CEILING AND SURFACES WITH HIGHLY REFLECTING ARRANGEMENTS FOR TRANSMITTING THE COLOR IN LIGHT PLAY. BOTTOM: SKATING KINKS INVADDED BY LIGHT COLOR PLAY HIGHLY REFLECTIVE CURTAINS AND DEVICES FOR HIDING LAMP HEAD UNITS



GOLD MEDAL AWARDED THE AUTHOR BY THE INTERNATIONAL JURY OF AWARDS OF THE SESQUI CENTENNIAL, PHILADELPHIA PA., "FOR HER WORK OF HAVING DEVELOPED ILLUMINATION AS A MEANS OF EXPRESSION FOR VARIOUS EMOTIONAL VALUES"

point of reasoning. This also points to a sound underlying correct and accurate thinking. It did not make a fugitive appearance, even most crudely practiced, to be seen and then discarded "like something the cat drug in." Indeed it created the prime reason for the building of the first large motion picture house—"cathedral" (!) it was called—seating several thousand, as far back as the year 1921. And this building was done, mark you, at a cost of great money outlay.

Since then it has continued to be a chief cause and important prop of these large houses, some five thousand and more of them, as well as others. Twenty years is not a bad time trial. The public has already spoken. The public has already given testimony that there is nothing in the art that is ignorant of correct thinking; that there is nothing in it contrary to or neglectful of the rules governing the comparative and constructive faculties in the pursuit and use of truth.

#### *Other Sound Grounds*

What other sound grounds for the existence and merited permanence of Nourathar can one cite? Surely no one would now call the idea that brought it forth fantastic. Though conceptions through or within the medium of light-color playing may give rein to one's capricious or whimsical conceits and fancies, such will also be based upon facts and reason, too. The practice of the art is in the highest degree rational. It sub-tends the natural. Its push reaches—it is hard to reckon how far.

Man is constantly putting forth tentacles by means of which the intricacy of his nature may be the

better understood. He craves to make still plainer the variety of colorings of his inward self—and to add to these. Feelings are well nigh infinite in their scope and value. They may be beautifully matched or harmoniously suggested through the essence of color itself, the spectral ray.

I presume one cannot stress the logic of a conception new, without a certain reference to the sciences. And this would be so in appearances that are in their nature ephemeral.

#### *The Sciences*

One must underscore again that this art roots in physiology, mathematics, and other exact sciences. It branches in psychology, philosophy and, yea, perhaps even metaphysics. *Its logic rests under these banners as its base.* Aesthetics is a long chapter. No matter if the play choice is made through exertion of the art sense only. Afterwards the scientific reasons appear. The pulp of the fruit surrounds the seed. A variety of root sources is within this particular kind of propagation.

#### *Adornment*

The light-color ray in a massed continuity to engage and hold the entire seeing field of vision is the greatest single widespread adornment the world has ever seen. Tell me, would it not seem to you a logical and worth-while experience to sit within a huge precious jewel taking on all the gem colors at will? This, irrespective of an artist worthy the name, lifting your feelings, charming your courage, playing yourself into new and subtle livings, lavishly fed through these? And in this way stimulating you, too, to beauty of action.



Is there a material, a phenomenon more supernal for accompanying the transcendent mystery of the human soul than this one? Does it not seem to you to have the chief necessities, the basic principles for lifting man still another peg above *the usual* all around him?

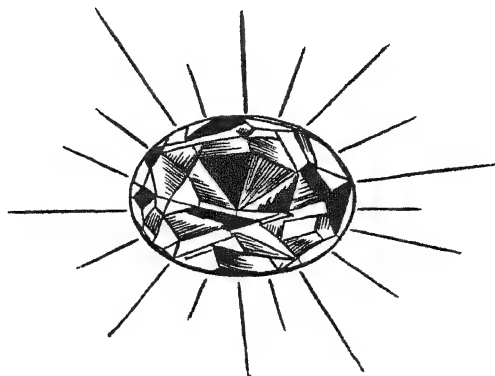
Does the marrow in your bones thrill easily to beauty? Have you, like me, found tears streaming at some subtle poignancy of music? Do the chills run up and down your back over a really perfect line of

poetry (and these are few)? Is there a grip at your heart on seeing a more than usually great picture? Does the miracle in all these enthrall you? If you thrill at these, you will not need logic to show you. You will understand without reason for doing so, though cause exist.

And it bears a re-reminding that, over and above all the arguments that may be made, it is the artist who, seated at the light-play console, through the manners of his creating, makes manifest the logic in its play.







## VI

### CHAPTER

## JEWELLING FEELINGS

**J**EWELLING feelings! Why not? To mark the ringing message by aid of the true blue of the sapphire! To make clear and shining the expressing intention by a white resplendent as the sheen of the diamond! Surely no apologia is needed. Indeed to call it "jewelling" is not to roam so far afield. The true color ray is what makes the rare value of the precious stone. Since the superlative showing, lambent within these, causes them to ornament arms and fingers and ears and noses and toes, why not this miraculous appearance to adorn feelings and cause them also?

Feelings are, so far as we know, immaterial. They have no extension in space. At least such as our eyes can see. They are not material as we now know, whatever the future may tell us. Light rays are as nearly substance lacking as anything we can handle, play upon, control. There is in practice of the art no gap in causing these to take on a parallel quality, value, quantity to the sensory feelings within man. As a money-maker the art is a great utility. Seemliness, decoration are inherently a part of it. The rays, then, may adorn feelings, as man's feathers and furs ornament him.

They are of the about. There is not the least stretch to the argument. By *majesty of the human mind* the rare excellence in expressed feeling, shown through the playing of the spectral ray, joins up with the jewelled in the light. The aesthetic is a sure bridge, the solidity of which is not to be denied.

### *Critical Faculty May Be Exercised*

Most important it is that as between this performance through Nourathar and that one, the critical faculty may be exercised; that it has been so exerted. It is noted when *this* performance is better than that one. And this even though the crudest of means becloud the conception. *Critical distinction, consciously or unconsciously exercised, proves the presence.*

### *Light Must Be Present*

To be bromidian—since light must be present—why not take it apart, master it, use its every potential, its every capacity, to make it behave as subtly and flexibly and expressively as possible? Why not provide the arrangements and the instrumentality by which one can cause it to move when one wills, as one wills, creating space made truly glorious

for the many mansions within the human soul?

Such argument is by the way I know. The light for seeing and the light for feeling are two entirely different things. They are teetotally dissimilar worlds. Art is a sufficient reason unto itself. The fine art of which I write duplicates no other. It has its own entirely new and particular place; its own aesthetic speech. As such, a right use of the rational powers may be found in its every character and part.

### *Made Not Born*

The fine art of Nourathar was made not born. Though colored light has always been, its beauty always known, to cause it to be spread in a wide continuity, in part to conform to the *wide range of the seeing field of vision of the human eyes*, entailed in itself alone a long labor. It brought out patented development, patented apparatus. The color ray is intractible, lacks in flexibility. A miserable little ray! one can call it, in one's impatience. It knows nothing, but to bat off in angles. These angles are, moreover, conditioned by where it strikes and what it strikes. And feelings are so soft and rounded!

The phenomenon was deliberately invested with flexibility. Its whole manner of appearance for the purpose was a cause of origination and design. A vision correct led its consummation. Its operability and success chime in with the universal in the interfitness. This advantageous issue was instantaneous on its being placed in the right. It was conceived and so discovered. It resulted. It became. *It was not from the beginning.* Much invention, much hunting for this and a hunting for that

was needed. An objective that was new and right guided its correctness. Expert knowledge for expert understanding will be marshalled forth for those who read.

### *A Stone in the Mosaic of the Whole*

The art is now a mosaic stone inlaid into the *whole*. It might forever have been missing from the tessellated picture. Only in retrospect may one see its conformity to a right ideal, its truth of mental seeing. Only in retrospect can one realize how it was guided, chipped, shaped and added to—that the part fit irreplaceably into the picture of the world entire.

Take it as you like it: Either there was a place in the Universe all ready for the fine art of light-color playing and waiting for it; or it was just a matter of originality and soundness of vision pushed through by unexampled faithfulness of labor. *It was not previously existing.* The direct and indirect proofs of this were such that not even an "owned" Judge of the Court could escape its mesh for justice.

I lean towards the belief that the initiative of man creates, as a God creates. It can *add* a thread to the woof. In view of this, big business must not be bolstered in such ways as to be in a position to turn a coming star out of its course.

Foster, nurture this new offshoot. Learn about it. Practice it. Through it we may gain a new speech to make still more clear the inner or innermost thing as it is: "Dass Ding an Sich," as the great philosopher puts it. Translate this either as "the inner as it is" or "as the inner became in him." I prefer the latter. It leaves the door open for deliberately enlarging the citadel that is man.

## U. S. LETTERS PATENTS

*Issued to and owned by the Author*

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PATENT NO. 1,945,635 LIGHT COLOR INSTRUMENT FEB. 6, 1934

REISSUE PATENT NO. 16,825 ISSUED DEC. 20, 1927  
FOR "*Associating Light and Music*"

PATENT NO. 1,345,168 ISSUED JUNE 29, 1920  
FOR "*Illuminating Means*"

PATENT NO. 1,357,773 ISSUED NOV. 2, 1920  
FOR "*Rheostat*"

PATENT NO. 1,714,504 ISSUED MAY 28, 1929  
FOR "*Control System for Light and Color Players*"

PATENT NO. 1,731,772 ISSUED OCT. 15, 1929  
FOR "*Instrument for Light and Color Play*"

PATENT NO. 1,654,873 ISSUED JAN. 3, 1928  
FOR "*Means for Controlling Light*"

PATENT NO. 1,793,284 ISSUED FEB. 17, 1931  
FOR "*Current Translating Mechanisms*"

PATENT NO. 1,854,547 ISSUED APR. 19, 1932  
FOR "*Motor-Actuated Switches*"

PATENT NO. 1,820,899 ISSUED AUG. 25, 1931  
FOR "*Lighting Appliance*"

PATENT NO. 1,385,944 ISSUED JULY 26, 1921  
TO M. HALLOCK-GREENEWALT  
FOR "*Notation for Indicating Light Effects*"

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The United States Patent Office has spoken in no uncertain terms of the basic character of the author's innovations and inventions within the art. The above list of patents, consisting of several hundred claims, has been allowed and issued to her. They are owned by the author.

## VII

CHAPTER



### A TEXTBOOK, HANDBOOK, COMPENDIUM

These pages arose out of a need for a manual of reference regarding the fine art of light-color playing used as a means of expression, or Nourathar. It was suggested by a set of lessons drafted and given to a class as instruction for playing on the instrument of its practice, installed for the purpose.

In a manner these lessons have grown into a super textbook. To be entirely clear as to a particular effort of the mind, something more is needed than the bare facts. There is a contributing surrounding, an aureole to the center that is worthy of mention. This helps the clarity of mind and enriches immeasurably the complete vision as to the momentousness of the kernel within. There are warnings also to be given for those who would embark on other likely ventures.

#### *The Contributing Aura*

The foregoing chapters denote, as the weathercock of the mind points,

how far are the searchings, which a developing art may spread in various directions. Such explorings are needed. Clarity starts from an understanding of the matters lying beyond the center of practice.

The surrounding knowledge is like an aura. It gets more and more nucleated and thickened the nearer one approaches the subject's particular gist. None of it is useless or lost. The pertinent, speculative, or quasi-speculative, as touched on in the first pages, may not be necessary but they are interesting. More compact with immediate meaning are the scientific connections used in the very materials and ways required by the art. These are so many and various one can well agree that "art is all the sciences." As for example: Light and the filtering of the light rays belong within physics. The filter base to chemistry. The instrument of play called in mathematics, mechanics and the electrical. We have noted an important bearing on physi-

ology. Through physiology one escapes not the zoological. Aesthetics walk hand in hand with philosophy and perhaps the metaphysical. Delving into phases of research in this or that science has been considerable. These will not be gone into here as nothing will that does not have a direct bearing on the practice of the art. Some of the facts are, however, essential to the perpetuation of a great and worth-while effort.

The art is a *one lifetime* labor. It is a *one woman* labor. This compendium is of necessity a *one book* labor. It must take in more than what would strictly belong within a textbook. Fine arts requiring, as this one does, a standard instrument for their play, and the record of their play, have managed to survive the vicissitudes of passing through many hands. They have progressed through a more than one contributing lifetime. Much effort was wasted. There was danger of losing all that had, in this manner, been gained piecemeal. Not so this one. It appears ready-made in its operable form and distinct conception. Some will scream a denial. Their doing so will be of no avail. The proofs are too many, too conclusive. There is no possibility of contradicting them.

### *To Save Labor*

This book is bent on saving others labor. I have in the past, since my initiating the idea, seen many attempts to enter haphazard into the field. They were bound to be unnecessary, footless and lost. Some of these were but attempts at steps already tried out by myself and discarded as leading off the main path. Without a *Vade Mecum*, without a work on the subject to which refer-

ence can be made, such efforts may breed untold disappointment, disillusionment, sorrow and distress. The wide practice of the art proves that there are many who are interested. They should have a manual to lean on, and look to.

### *Time Taken by an Art to Arrive*

There may be seen a waxing momentum in the time it took the several fine arts to arrive. Painting, for example, was practiced long. Music arrived within the memory of some less than half a dozen lifetimes. If this one took still less it is a good deal a matter of the coral reef: built up layer by layer, and finally making lodgment for a new land thereon. The activity in the world in general engenders a cumulus. A momentum helps a later hand. Fact upon fact gets piled up ready for a new result. Lucky if there is the individual capable of seizing on so many threads through which to create a constellation new.

### *The Individual in the Result*

All accretion due to universal effort detracts in no way from the glory due the individual who, walking in the garden, conceives and produces an entirely new flower, never before thought of or caused to come into existence. I make the point because I have heard watchdogs in the development departments of huge aggregations of capital talk. Such argument may have been indulged in in an attempt to excuse themselves. Of course, the inventor didn't invent the wood. He didn't make the iron or steel or glass or chemical of which his invention might have had need. Their task was to attempt denying an inventor his rights through point-

18 out that all the ingredients were not of his making.

This counts not, for he did conceive and create an entirely new method, system, article of manufacture or composition of matter—sometimes more than one of these—in one. I suspect it makes a difference how these argue in the event of such development departments seeking for themselves the patent or attempting to appropriate one. There are experts in what constitutes invention. They are most careful in their deliberations and difficult to convince. Some have spent their entire adult lives in a patent office. Their livelihood has been made through it and under the eyes of their Federal Government.

One alien to this sort of expertness should, in my opinion, not be allowed to be in a position to annihilate with one stroke of the pen the long, tedious and expensive prosecution ending in a patent. The effort to attain these, that could so easily be of such immense value to man, is rendered unattractive and to be avoided because of the knowledge that the result may meet a long ear, hairy and pointed, raising itself above a collar or black robe, sitting in justice over a matter in which they are not the master minds.

*It is the province of a textbook to warn as well as instruct.*

### *The Value of Effort within a Single Brain*

The above thought suggests a digression that must be held as being pertinent. It is said there are septillion cells in a single human brain. There must be at least that many. In an originator's, an inventor's, skull these are all working with a

unanimity of purpose to the one end. Can you show me any capital aggregation that has that many laboring slaves, actuated by a single idea, bent on a one new result? Can our vaunted civilization be, after all, sometimes just foolish? Is it right to fashion artificially a situation where such conspiracy can effectually eclipse the individual's leading? Whether right or not it exists and today.

The one-ness of vision, the one-ness of labor counts more than ever today. Protect it. Lucky the world that there may still be found single individuals with bravery and endurance enough to push through. And this in the face of unexampled handicaps: conspiracies, monopolies, aggregations based on capital, labor, race, on any universally useful commodity, yes even on religion and goodness knows what. But how long can they? There must be a change of some sort or we perish. The body politic is today inviting, pleading for its own destruction. I know with sadness of this of which I speak.

### *My Fitness for This Writing*

*I am known as the expert on this subject.* I can transmit the facts with authority. So careful and meticulous has been the labor entire that it is I, and perhaps I only, that can lay bare its roots, rear the trunk for view, spread the branches, show the little green leaves and the darker large ones, the flowers and, I thank my stars, the fruit. This would not have been the case had the subject been less subtle, easier to seize on. It is one thing to copy a flatiron for smoothing clothes that has some worth-while gadget appended to it. It is a different thing to successfully mimic the needs for fine art produc-

tion. It is fortunate that this art can still point to much that has not been travestied. It can still be made to come forth clothed in all its pristine worth.

I have been working, without let or hindrance now for the past thirty-eight years, the span covered by many an entire lifetime, on the consummation of a vision that seemed to me good. I am in hopes it will escape a demise inflicted on it through incompetent hands that would pre-empt its position.

This book is essential to that end. It is right and proper to make a lasting record that the labor shall not be lost or continue to be garbled, and through such garbling be killed.

I offer a fine art on a platter full fledged. I have brought it to operable conclusion through boundless effort, sorrow a-plenty, years many and, of course being a woman, tears of blood and myrrh. I await confidently the incense.

### *A Tangible Labor*

Of necessity the dream came hitched to apparatus. The production needed an instrument. It needed the concrete means. Vision precedes the material unfolding. The operable never comes about complete. It does not say: I will arise and shine. The horse is mounted without care or argument as to its parts or their trajectory. This comes later.

A notion which seems made of worth-whileness is begotten. And how dissimilar the first experimental instrumentalities from their final form! The first showed discouraging lack. The next, and the next, and the next similarly. The knowledge that there is a right solution keeps one going.

An idea goes scampering across the brain, bred by goodness knows what inheritance, circumstance or proclivity. It is caught by the tail, glimpsed at the corner of its ear, felt through an end of its whisker or claw. Then trial after trial. If a cosmic right happens to lodge within, at long last it takes its place in the scheme of things entire—complete, operable. The whole did not arise full fledged from a Minerva's head. The result was greater, bigger by far than that first sensed. But the right, the correct, the sound perception was of an Athena's mind, from its first.

The experiences are various, the dangers met are many for those embarking in a similar boat. I am herein doing everything possible to set you wise. Fail not to investigate you who would enter the creative field.

We will consider in turn as being cardinal phases of the subject as a whole in parts of the book devoted to them as follows:

#### *PART ONE*

*Section II. The Interior and Its Arrangements wherein the Fine Art Is Best Practiced.*

*Section III. The Inventive Significance Carried.*

*Section IV. Tracings within the Woof of History.*

#### *PART TWO*

*The Instrument and the Instrumental Means Used in Its Production.*

#### *PART THREE*

*The Notation for Recording on Paper or in Print the Conceptions in Light.*

#### *PART FOUR*

*The Practice of the Art with Brief Recommendations.*

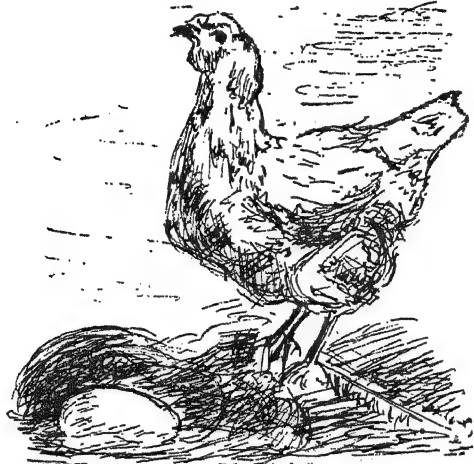
#### *PART FIVE*

*The Technique.*

#### *PART SIX*

*The Composition Made Through Light and Its Color.*

VIII  
CHAPTER



THE MANSION WHERE JEWELLED  
FEELINGS MAY HOME

NOT any house is best. Not every interior is worthy. Existing auditoriums may be adapted. The best are especially constructed for the purpose. Curves are more suitable than angled corners. A wall having a different direction at every point, continuously bent, distributes the rays, prevents splash of light and color and so blot. The enlarging way of these spreads the effect gradually. The lessening rounding collects the rays. Both play in with any intention of the light-color artist. He launches his rays forth through the instrument for their purposes of expression. They can from such "contours" best make their way to surrounding the field of vision, so wide in its range, with a unity. We are now writing of the shell of the interior: the shape of the housing proper.

An auditorium (smile not) patterned something after the shape of

the egg "à la Columbus" might be the ideal. You may not have heard the story of Columbus and the egg!!? Someone, so it is said, wished to put a limit to his powers. They twitted him, that he couldn't stand an egg on its end. Plump! it went, and behold a flattened base for egg equilibrium.

Flatten also such an auditorium shape along its length to hug the ground. Enlarge it to hold an audience of few or many and you have the ideal form for the interior, built to accommodate the fine art of light-color play or Nourathar.

*Such a contour is not a necessity.* As described, it should warm the cockles of a modernistic architect's heart. He might well try it out. As an aside: he would play in better with the individual's needs—if he could tie himself loose from the mesh that greed of capital has wound about him also. As this consists



now, it is made up of his local organization, its parent national one, its grandparent international one. Then there are the shadows behind: electrical, banker, insurance, et al. It is a veritable house that a Jack built. The relief to the individual outside these would be great. For what is best for fine art may not be according to the liking of the interferers with destinies behind the scenes.

### *Indirect Light*

The eyes cannot look directly into light sources so bright. The rays from these must be made to come indirectly. You may, if you wish, remind yourself of the traffic light color and its distribution along a rainy street. Incidentally, I wish that even this everyday use of so beautiful seeing could be avoided. It also has come since this labor brought colored light much before the general attention.

Substitutes for traffic lights are used. They are possible. Why cast pearls and jewels under the feet? Colored light signs also get so usual they defeat their ends. The really great merchandisers do not have or need even a name plate on the front. In Nourathar, too, the rays rebound indirectly. This rebound can agreeably be controlled. The shape of the space within which the rays are produced has much to do with the directing influence. The laws which govern are definite and accurate. The angles of the rays' exidence are the same as those of their incidence. This fast rigidity makes this particular problem easier.

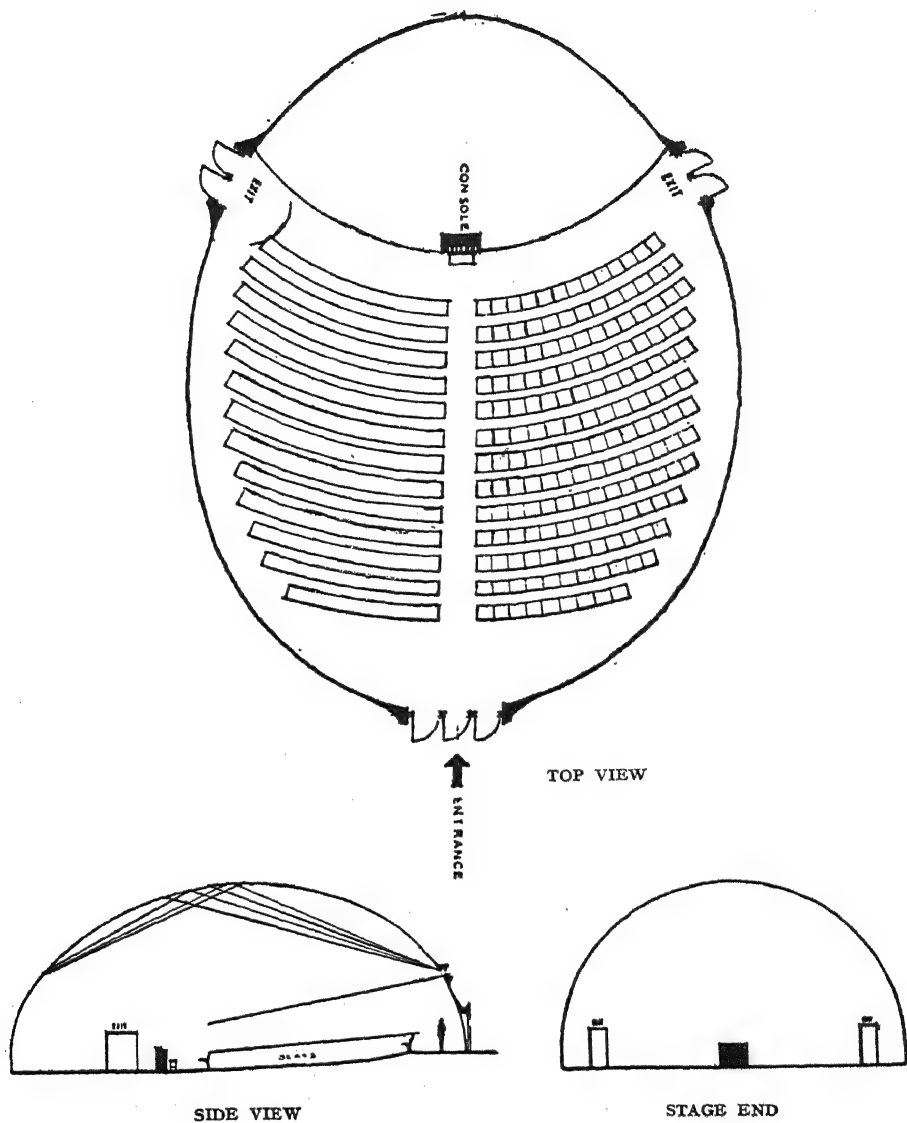
The plaster cast models of the drawing class in school—do you not remember them?—of pyramid and rectangle, and curved boundings such as

balls. These are good examples for making the point plain. The angled sides show sharply dark visiting contiguous sides hard by sharply light. At rounded surfaces the rays spread smoothly into umbra and penumbra even as in an eclipse of the moon.

A rounded wall can keep the rays "in play" till they leave the surface to reach the waiting eye. An angled corner more or less imprisons them, blocks them, keeps them batting back and forth. This limits their freedom of flight, makes hard demarcations and reduces their quantity. It is in such ways that walls of a curve are preferable to corners for the mansion within which jewelled feelings may be made to home.

Such evasions from the rectangular may be computed with greater or less care. Indeed the form of any inside to the walls is comparative as to good, better, best. Any kind of such enclosed place of assembly is better to have available than none. If not perfect for the purpose they can be improved upon in various ways. Suitable curving of walls for this use have been carefully made and shown in one of my patent applications. (See also the appended drawing.) Any such graduation gives the angles of incidence and exidence of the rays a chance to follow their own known habits and still cause them to light on points for *progressing* always further along the space they strike, as they hit and rebound. Naturally, this does not apply to the rays whose travel meets not the walls or other confines forming the interior: those that come to the eyes direct.

It is well for this art to cater to the entire seeing field of vision. Through this care the changing effect



A SUGGESTED CONTOUR FOR AUDITORIUM ADMIRABLY SUITED TO COLOR RAY DIFFUSIONS. THE CURVES PASS THESE ALONG TILL THEY REACH THE WAITING EYE.

can the more completely envelop the feeling of the beholder. This point of view well supports the featuring of floor as well as ceiling. Far be it from me to even suggest any curve in the floor. I have, however, used reflective surfaces on the paths between seats leading up to the focal points in front. The expedient is not remarked. The general aim is helped. The juncture of floor with wall could well be in the nature of a hollow. This is now frequently done as easier for the cleaning. Shining stage floors have already been for their reflecting capacity.

The ceiling carries an importance in light-color play. There may be much charm in the manner in which a place of concourse is domed. To feature the "above" as well as the "below" is one of the novelties followed by the art. "Rotunda," "dome"—the very words carry the idea of beauty in architectural design. The swelling upwards of these allows also a constantly fresh further go to the rays striking them. In ceilings also these make for a continued travel of the color medium and spreads it with grace, till it comes down to the expectant eyes, so blessing him that gives and him that receives.

Let us get back to the egg "à la Columbus." The rounding at the smaller end is ellipsed. This has its own added value for the purpose of ray collecting and stressing the chief point of their reach at the front.

A slightly sharpened nose forward for the interior tends to collecting the rays in greater density towards the centre at the front at this concavity. A bit of incurve at the back, towards the entrance, rounds up into further use such rays as might

err like lost sheep, and brings them back into the ray fold. All this would help the dynamics of play. The change of more to less should be smooth. At the front color would be thickened at the focal centre and gradually lessened as it proceeded down the hall. At the back it would be conserved.

There are learned names for such curves. Parabola is one. Hyperbola is another. So the front curve to our hall would be parabolic; the curve to the back, hyperbolic. Such attention from the architect helps the unity to the degree of darkness and brightness impression. Should this be more or less negligible within the general effect, it is as well to start with an unblotched slate. A deviating pungency in architectural design can then all the better be planned if needed or wanted. Much that comes to the eyes will not seek the walls first. It is well to harbor every help.

Color rays are precious. They are rare. It costs money to produce them. The freer they are in this interior movement the better. Rather do without the angles that imprison them. It is better not to disturb or put obstacle in the even tenor of their way. In this way their smoothly allotted distribution may be helped. They are never lost, these rays. If not imprisoned, they reverberate and re-reverberate till they meet a Waterloo, which in this case had best be the door of an eye. Let them escape into outer space! They then wing their way to Orion and the Milky Way. The light of a match may be seen from an aeroplane miles aloft. Do not crimp their style.

#### *Interior Shape in Resumé*

So the shape of an interior may

be made amenable and helpful to the efforts of the light-color play artist. It may help flexibility of movement to the spectral ray not inherent to the medium itself. Why not for a change get rid of the four square. It might be well to get free of it, to expunge it, annihilate it entirely. The change could make for charm and novelty. However, by chastening, *any interior may be made to more or less do*. Flexible board, curtains, and such ways may make up for a lack in the construction itself. And this, even though the audience room be old fashioned and long in use.

It is worth while for the architect and builder to look into this matter. The new should be tried. It is not impossible, indeed it is quite probable that indirect benefits would come thereby. We have seen examples in plenty where powerful light in electric light of daily use has been promptly deprived of its strength by shields or other light obstructing ways. Why make something only to annihilate its sought character.

The color ray is a ticklish customer and "not any house is the best."

This, which one might call the echoing and re-echoing and re-re-echoing of rays and their colors, is not only of a rebounding along the lines of confine; it goes across the middles also. So there comes the sense of being within that not hard and fast—that, moreover, within which one cannot drown or be asphyxiated. On the contrary, it is one which lifts into a reliving.

But this surrounding must be well played. This permeating must be well planned. The repast could be so heavy as to breed indigestion. It could be common and nauseating.

And this, no matter if, on the other hand, the thickened beauty of it, the muchness of it is superlatively full of exquisite wonder—the experience one of intensified beauty. I know, I know. Great was even my wonder, who had been so long toying with its ways, when quite by accident I went into the end of the confine, central to the play, of a long narrow photometric laboratory where I was working. Every and all rays seemed to have come back to help his brother intensify the great marvel to me. It was a marvel, I well knew, that could well play on all we think of as sensibilities warm back of the eyes.

This ray re-echoing is a matter different in kind from the rehearing of a sound reverberated, that is so embroiling to the ears. For the re-coming of rays to the eyes is so miraculously rapid. It is so miraculously neat. It is of a one-ness because of the infinitude it contains. It is so because of its unbelievable quickness. It does not get entangled or confused. The eye has slowness in seeing for dealing with it.

To make still more clear: *By thought of the architect*, the light rays can be made to bat along enclosure boundaries something as a stone can be deftly skimmed here and there at the surface of water. Or, it can reach just as light of star. The great number of them in their minuteness brings into life the heavenly spread of them to the outward and the inner of perception.

How utterly different are the spheres allotted to eyes, allotted to ears! Each wields a distinct and separate empire. Cannot the deaf see? Cannot the blind hear? The deaf and dumb can get these messages transmitted by light.



## IX CHAPTER

### AS TO SIZE OF INTERIOR

**T**HE size of the auditorium matters not. The light ray knows not space. From distant nebulae myriads of light years away to a small or large interior on our planet the least glimmer finds its way. It needs but guidance. It must not be allowed to get lost through becoming embedded. It must be shepherded from going astray.

The minutest glimmer, the initial gleam speaks as loudly, used as a means towards expression, in a huge auditorium seating four or five thousand people as in the smallest of huts. Such a minuscule quantity of light is, of course, useless to see by. But then light to feel through and light as a utility measure are two entirely different things, two worlds teetotally foreign to each other.

Indeed, the very first gleam is a potent tool in the light-play artist's hands. In the total darkness it may hold the attention that is watching for a beginning. According to the context, it may suggest the mysterious, the sad or a variety in meaning. It is the first leading of the brightness scale.

#### *Distance within the Interior*

So the distance within the interior matters not to the seeing of the light. *It is so that the stars come to us.* There are other considerations, however, to be met. The larger the auditorium, the more extended becomes the light scale. It must be added to as one lengthens the tail of a kite. This, though the scale's beginning be the same for any auditorium. The larger the house the greater the quantity of the light that may be needed to play with. It may be restricted to what is known in the theatre as a set, however, even though the auditorium itself be large. So, no space is so large as to be prohibitive, no spot so small as to bar its usefulness.

This fine art uses the light scale from its very starting—from the absolute of its darkness up. It uses this scaled light from there where the eye may not distinguish objects within it. The feeling eye senses better than the seeing one. The light scale does not start from the halfway or three-quarter way along. Every gradation in its visibility

counts for the purpose being written about. As well ask a painter to do with a part of his possible shades, as to think as negligible any degree in the darkness. The shading is led to from the darker on. The exquisite detection of the eye makes the decision—not the dynamo or transformer.

The freshness of the eye, rested by complete darkness, starts to perceive at the very first increment of visibility. To mutilate the extent of the scale is to consider the eye as dull to nuance.

The standard instrument, we will later describe, holds in this way its right playing capacity regardless of difference in auditorium size. The complement of light sources and their controls will be but added to for the greater spaces something as tail may be added to tail of kite to extend it. The space of interiors differ-

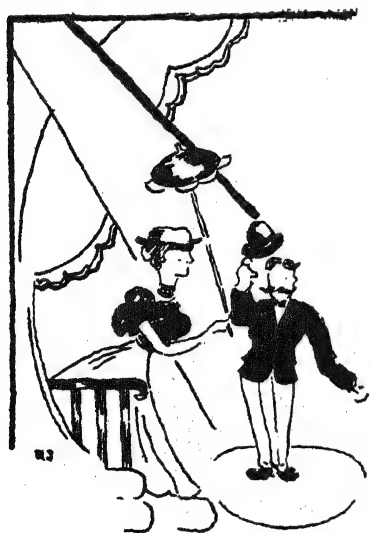
ing in sizes may be filled with light as one may fill a smaller or larger pitcher. *The larger pitcher does but contain that which the smaller holds, and more, too.*

Additional light sources, complementing the beginning scales, may be called for by the larger spaces. Adding to the starting, the cruder end of the light scale does not interfere with its beginning. The amount of equipment added to the console proper is optional. As to this the size of the auditorium and what one may wish to spend guides the decision.

To be nearer to or within the thickened end of the light and light-color to the front, or the focal point, or the central point of the general showing gives an intenser jog to the sensory man.

It is of the highest importance that the number and position of the lamps, from the forward end of the auditorium be standardized. Great color quantity as now indiscriminately thrown at the vision wholesale, without discrimination of nuance, bids fair to drown the newly born effort.

It can well put the very best of architects on the "qui vive" to consider all the interior necessities of such auditoriums and not spoil the unity of effect in the lighting played in it.



## X CHAPTER



### SUBSURFACING

THIS chapter has naught to do with a submarine. The implement of warfare, I know, dives below a surface, comes up for air, rest, relaxation or whatever a submarine rises up to the top for. These lines have to do with preventing a *color ray* from arrowing down into a silver sea, never to appear again. What happens to it when it so disappears? It is said that it somehow gets dissipated in the form of heat or possibly undergoes some other amalgamation: a cement, plaster or paint death. Better live, little ray! to skip along the shimmering front, which we will later describe, to plunge within a man's eyes, to color his feelings and so transmuted live through him and his descendants forever.

The virgin walls of the mansion, some of whose specifications we are giving, need first a plaster. The character of the plaster and the manner of its laying on is of importance to the final results aimed for.

Think of it! Plaster, yes plaster must be laid on in such a way as to take on characteristics that may be called a "halfway house" between

the surface textures of velvet and those of satin—so flat in the latter, so forest-like in the former.

Look at black velvet. Is it not rich in its depth of blackness? Would you think that the little hairs that make up its nap, standing up so straight, are so many little policemen holding the light rays captive? So they make for a richness in the color. Not allowed a freedom out they, nevertheless, fashion their own kind of worth-whileness. And how the black selfishly absorbs and imprisons their every color so that not one whit comes to the eye! Black velvet curtains, red velvet curtains in the theatres of the past are one of the unanswerable proofs that light-color playing was not practiced in their day. They are a proof of my priority in the matter. Stage settings and arrangements in days not so long past are not far behind in this evidence. The light ray is a ticklish customer. And so, too, it makes a superb witness.

Hold up the point of an ordinary pin midst many surrounding eyes. Let these eyes be many: near and distance away. All see the point of

the pin. So many light rays lodge on this minute end and fly away from it that there are enough to be seen, from any place or position. There are myriads of them. How small! How very, very small they are! Nothing can more plainly denote the minuscule numberlessness of them. And the color ray is but a part of them. Each is but one sixth of the white you see on the end of the demon-strating pin. The hairs of black velvet can hold them captive; the smoothness of satin shoves them off. But beware that this even showing is not too "sweet," too flat or stupid.

So the plasterer must be told to strike a mean. He may roughen the surface of this coating a bit, not too much. Let him lay it on in a roughness too billowy and the depths formed may, like black velvet, hold the rays too captive and so darken the result; too smooth, and richer color vibration is lost. In between the two extremes is the ideal.

Where between the two? Experience over the years will help in the determination. There was an activity in the past, entirely alien to this one, that gathered through their experience, pertinent conclusions as to this point. Although realized for their own purposes their conclusions may be useful to this. What they found may, however, not have been put down for helpful record in this art.

So "rough!" or "smooth!" it is as to the plaster. How rough? How smooth? I am reminded of twirling tennis rackets to the ground, before these became so costly, to see who should have the first serve. The rough, or the smooth, resulted from the catgut of the racket strings going either above or below their interact-

ing mates. This reminds me of the opinion of a chemist occupied in giving bogus satin a sheen. He said the reflection came solely through the arranging of the threads in such a way that these became receptive to a sending on of the light. This, I am quite sure, is not all. The lack of absorption in the very thread's hardness or softness would count immensely, too. Brave little silkworm to make so good a quality of thread.

So here is a plaster problem that has been met, and that can be still further considered. The less escape of rays, the less embeddedness, the less captive are they held, the better the help to Nourathar result. Even the subsurfacing of the walls is important. We have gotten as far, let us say, as the panties (!) of the walls; there is still the chemise and the skirt before the final dress. I realize that saying "chemise," now obsolete, dates me. Because it seems that these are not worn now, either in the bathtub to hide one's skin from one's eyes or under several petticoats of differing lengths and varying textures. To an entity so minute, so superfine as the little ray, plaster is practically porous and the necessity is to forward the ray not sink it. Additional means must be taken to, as we have called it, "chemise" the plaster. This is a part of the still more efficacious means that must be provided to shut off every loophole through which the appearance of the rays may become nulled or lessened.

The color ray is rare of getting. It is costly of production. Moreover, to allow the loss of its result after the getting is not the better part of valor.

A very well-known painter, popu-



lar and indeed famous, begins a new work by first of all coating his bare canvas with a heavy layer of black, brown, or terra cotta paint before elevating his picture. This is because the impermeability so provided makes a potent obstruction to the escape of some of the rays the painting is labored on to reflect. For similar reasons the plaster, covering the entire walls and perhaps ceiling also of an interior entire, meant not for raising a picture of objects thereon, but for imagings of succeeding feelings only, through light nuances, must also have such coatings put on it of impervious paint before its final dress. This paint coating or even coatings comes on top of the plaster. Its color matters not as the sequence will show.

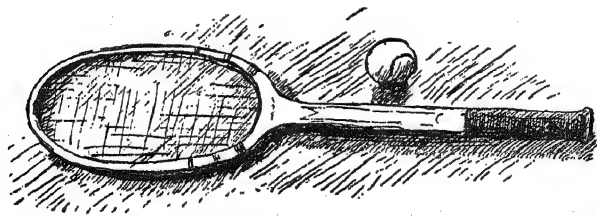
Two artist friends of mine once painted some portion of their room, I forget now which, with coating after coating of white paint. The more coatings, the more the room "sang." So they expressed it and how else would you? All the rays given forth by the light in all their complete and pristine beauty had visited the white "en route" to the eyes and so they "sang." And the "eyes" saw that it was good.

Now that is what Nourathar is for: to make light "sing" not one but varied lays. And so the coatings of paint are put on top of the plaster in order to help assure or insure

the final fulness in result. Whether it is a painting, or the floor or the furnishings of a room, or an auditorium for attraction of the public; to play on, and arouse and sooth the feelings through all the capacities, held in light, the right preparations are important, if not essential.

To roughen the plaster into more or less sharpened angles or quasi-points has its reason for consideration. This would help the final surface to become faceted, slightly, very slightly, as is the surface cuttings of cut glass. This lends a sort of amenability to increase of brilliance, glitter light, sparkling bright, and brilliance is helpful at the high climaxes also. This gives a help, too, in splitting sharply the rays of more than one color, keeping them from being just smoothly mixed into a oneness. This way they will vibrate the more. They will have greater pungency and bite. On this point hangs another tale which will be further unfolded in a later chapter.

We have described an item as entirely uninteresting as a plaster coating and the form of contour it could well cover. In such finical directions can the needs be stretched. So here we approach the dress of the walls. But first there is still another care to be taken. Otherwise all the pains for right provisions will be of no avail.





# XI

## CHAPTER

# LIGHT TIGHT

**U**NINVITED light: beware of it. Like adding water to your ink, like taking the punch out of your ideas; it is a leak in your house, a dilution of your soup. If you have set your heart on a light-color play result, no dagger held at your throat can easier kill your hopes than light making itself present *that is not part of the play*. This sort of a stabbing, I am sorry to say, is often resorted to by those wanting to secretly make your performance a failure. It is so easy to accomplish. It is so impossible to lay the blame or trace the criminal. Just a door opened after it had been carefully shut—a spot or search-light turned on from a balcony while you fronted your instrument. I could tales unfold.

### *Accidental Light*

The accidental light unintentionally showing itself, filtering through

unnoticed, may also be devastating. The miserable little ray! I like to call it when I think of the trouble it has caused me. It can penetrate like a ghost or spirit under a shut door, through a crack in window. Not quite. It is a palpable little body. But it can come through crevices so unbelievably tiny.

Let any light steal in from the outside and the color scales will stop at the thinned pastel shades and tints. Worse yet, as inconclusive color, they will be greyed uncertainly. The spectral ray is jealous to a degree. The circumstances with which it must be provided, either to appear at all or to appear fittingly to the purpose, are exacting. The outside Universe of light must be shut out completely, and at will, from the mansion you would so jewel.

The quality of the light-color material must be cared for. The best is none too good for the purpose. And this must be deliberately looked out for. Light extraneous to that which you have set out to use upsets all the calculations. It can destroy. It can make of no avail.

In the providing of the medium itself, this without thought of what it is to be made to accomplish, art must supersede even some showings in nature. The rainbow outside furnishes the best of the sort and its color is far from what the full intensity could show. The small bits of it seen at its best in rose or violet suggest the vicissitudes color in quantity can meet.

### *Percentage of Color in Light*

White light is the sum total of all its rays. It is light's climax, its apogee. In artificial light the colors are of various percentages of the whole. These percentages get more evened up the higher the potential of the source. The blue rays, as for example, may be but two per cent of the whole. White in its overstrength may, in any of its degrees, pale the color, vitiate it, even annihilate it. Any unsuspected or unwanted competition by it is exasperating. Its unplanned appearance may destroy the intention of the light play being made.

### *Light Tight*

The "tight" in the "light tight" refers then in this chapter title not to strong drink. It does not mean intoxication over the extreme beauty of the color ray. Such intoxication could be. The beauty is so great.

The phrase coined refers to providing such arrangements for the place in which light-color playing is to be practiced as to allow no rays, outside the objective, to filter in from either the outside or the in.

Developments far from the province of the art have helped these necessities. They now make this form of safeguarding easier. Certain activities require the absolute of darkness. Light-tight window shades are now made for X-ray rooms. All similar provisions can easily be helpful.

### *Historical*

The difficulty of finding light-tight conditions is also one of the unanswerable proofs of my priority in this labor. The early date of my conception was 1905. Certain indirect researches antedated this. Only later was it realized that these, including my researches on the pulse origin of rhythmic beat, contributed to the right unfolding. When I began trying to put the conception in practice, I found the difficulties well nigh insuperable for getting the necessary darkness within which the attempts could be seen. All manner of reasons made for this. Every bit of light was needed to see by. There was no indirect ventilation. The illumination by gas ate up the oxygen and needed more. Fire underwriters' laws at the time insisted on white light being at all times present. This was for seeing the exits in case of disaster. Windows and street lamps, perhaps a block away, intruded their light. Many a severe draining labor have I expended in my early demonstrations to block such handicaps. These meant among

others nailing newspapers and sheets of various sorts over gapping windows, and sometimes many of these. There was then no fear of bombs. There were no "dim out" drapes. I know the difficulties of "black-outs" better than most safety wardens. Gaslight, candlelight, flame light of any sort, including the pine knot of wood as a torch, must have air and oxygen. They could not have been enclosed to the exclusion of the white of the light and still be. These also furnish their dating. In addition, countless other factors bear stalwart witness against any monkey hands that now do or may seek to purloin that which cannot be attributed to them. Old cuts and drawings are corroborative.

To this day watchful care must be taken that a performance be not wantonly or unwittingly spoiled. It is fortunate that development meets development as in the matter of X-ray room window shades.

Yet, in spite of every care, it may still happen that a bit of unneeded glinting will come to disturb or spoil the effect aimed for.

Under such circumstances the artist will feel that "miserable" is epithet not strong enough. "Diabolical little ray!" is better. For once allowed entrance its persistence is unbelievable—and this though its nature allows no rounding of corners. It must walk a chalk line wherever it goes—and it seems to investigate always further, no matter how many directions it takes. It can be the very jinx to the objective aimed for—and this in competition with its kind. It is a bad, an unholy, guest when unbidden.

Entering, mayhap, from an untoward little crack under the door, it will look impudently at you from

atop of the ceiling. Doubling on itself simultaneously, it will leer at you from the side, and then mock you from some inescapable point in front of your nose.

Should you wish to know where the builder's workmanship has not been flawless, look for the bit of light glinting through at window frame or door jamb.

There is no way to stop its mad career of crime against the law and order of the moment than by scotching it at its starting by some hindering expedient. As with incorrigible youth, one must seek the cause at the starting and annihilate once and for all the reason of the sinful disturbing.

#### *Escaping Light from Color Filtering Sources*

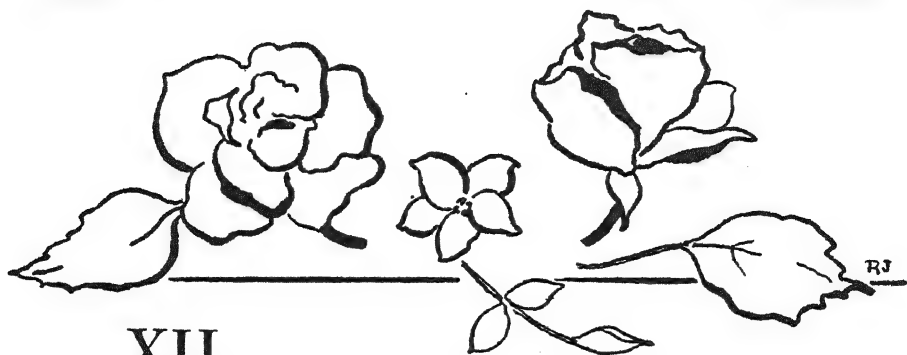
The very light sources, which the instrument uses, must be carefully watched for white-light leakage.

The art is for the interior and not the outdoors. I shall always remember gratefully the snowstorm that came in the nick of time to blanket the glass of a large conservatory where one of my early demonstrations was held. The moon was full. Its looking in was not wanted. The snow policed it away.

#### *Architects and Builders Will Note*

Any auditorium, now building or hereafter to be built, should take account of the matter of light tightness.

*Light color and light-color play has made its way.* It is likely to be used where least expected. Every new building should have this care in its lecture hall or even banqueting room. For in conjunction with these latter, programs are often given.



## XII

CHAPTER

### THE SURFACING

**A** CAPRICIOUS queen is the sheer color ray. She is most "picky and choosy" as to where and *how* she will allow herself to be seen. To the leaf she smiles her green, but it is the flowers that are a violet or a rose. The sun allows her full play; yet she holds back as she wills, lending a hand here and there. Perhaps the rainbow gets her completest favor, only to find her vague and uncertain. At times the clouds at sunset tempt her but in a result for the most part indeterminate and unaccountable.

This sort of behavior does not do for a comprehensive and recordable fine art. Such a one requires an uncurtailed palette—dependable, sure. Let the ray be whimsical in the great outdoors. To fine art she must be forced to give her full value and at the instant command of man. The manner of conduct in the great outdoors will no more do within our interior than that the whistlings of wind and soundings within depth of ocean are the scales of violin or oboe.

How right are the French to give gender to the neuter! And this grammatical custom may be traced to a subconsciously matching of values. The color ray is feminine. She must be mastered to give what she has. The interior, where she is to be played, must make no concessions to her whims. It must allow her no choice. It must force her to be captive in her every charm and at every command. She must be ready to answer at any moment to the whip of life and of art.

I have always cared for the phrase, "The bond shall be free, and the free shall be bond." In general it sounds cruel. But who will say that the results excuse not the means. The rainbow material, too, must be made bond; that its athar may come free. It is by properly circumstanced and light-tightened space that the ray's rose is compressed, and see it speaks! The violet is held masterfully controlled and behold! it makes utterance. The blue is enshrined and miracle of

miracles it creates human sense. In the perfection of their sort they must be made to go as human will wills it and as human expression needs.

We have arrived at the dress of our hall. The enclosure may be a shrine. It may be any auditorium. Being a woman, I vote for silver leaf for the wall covering, but then silver leaf is costly. So let us compromise with an aluminum paint of high quality. Why silver leaf? Why aluminum? Look about you. See where the self-same light, falling without favor equally on everything, shows nearest its full measure. Perhaps it is but the metal holder of your pencil's rubber end. Perhaps it is the silver-like clamps for the loose-leaf bindings of your writing. Wherever it may be you will note that, though the same light falls on all, it is at its brightest where the hardness of metal throws it graciously back to your eyes. The color is true where such hardness is of neutral hue such as silver-grey.

Since all color range must have equal and uncompetitive chance, the kind of base that can impartially show them all forth is essential. For colors can annihilate each other. Is that, too, a feminine quality? Say not so. Engineers are very good at it also. The yellow of gold is an enemy to blue or green. I have seen makeshifts tried by those who thought they could straddle or pussy-foot the issue: bronze or browns or further. Such begging the question was the result of imperfect knowledge, and makeshift apparatus.

A neutral silver-grey is the ideal. Hence the silver leaf or aluminum. It crimps the style of none of the colors, allows all an equal sway. Try

not to vote for a white surface. White, even in a background, pales the colors, unsaturates them when you may wish them strong. It has its effects on even the refraction and reflection. Note how white paint added to red weakens the red into such showings as pink. This it does to all hues similarly. The unyieldingness of metal stops all excuse for evasive behavior on the part of the ray. Softening the results of the hardness, tempering the brilliance, the darkling, the brightling is in the hands of the artist. He must have the full control. The background can yield this to him. In this way it becomes a blank on which anything may be written. Hardness is needed for one hundred per cent reflection; neutral grey for the truest. So we arrive at the fact that the walls of an auditorium, made ideal for light-color play, should have as their final dress a coating of a metallic neutral silver-grey.

There is, then, a needed reciprocal between the character of the surface and the rays produced. It is not enough to produce the rays. That which these meet en route to the eyes must play in, by not interfering with your making. The backgrounds are then acquiescent partners. If they are the best for the purpose, they can then not make null your intentions.

The metal surface could well be sprayed on, for brushes can be dirty. Even cleanliness is a factor. A grain of dust may be a splendid expunging bed for a beauty ray. Nourathar has already had, in this matter of cleanliness, its indirect effect on even the playwright's stage. In the past, at least, such stages have been not only dirty but filthy. They have

known no broom or soap. Both stage set as well as floor suffered. Grains of dust and dirt are capable of swallowing up the rays. It is the hardness of the metal or metalized surface that prevents the light rays from penetrating through. It is this fact that reflects them back to the eyes.

This is a gain of moment where every color quantity counts. Remember, you who so glibly followed where it has taken such infinite labor to hew a way and smooth the path. The kind and color of the surfaces that prevailed, when this conception came about, are in themselves tacit witnesses that the origination was not in practice or use. Indeed, after many years, it was still found to be so difficult to show the ray color when produced that all manner of subterfuges were resorted to in the attempt to remedy the debacle. In the first house of entertainment built for the purpose of including a debut of the art I saw large bright red cushions placed on the stage floor. They were well calculated to at least strengthen some color showing.

The eyes cannot look directly into light sources so strong. The light source is this fine art's sun as well as the mouth through which its speaking comes. Its rays must first strike a surface and then come indirectly guided into the eyes, as well as perchance the eyes of your soul. Every tone for this must "be touched that God set between His after and before."

We have provided a convolution, a shape, a form to the auditorium proper. This preshaping is also so calculated as to help the artist. The instrument itself can well make use of every and all such advantages. It should be given the utmost possible

out of the rays produced and their irradiations.

The shape of the auditorium, its curving, carefully computed, causes the light to spread in such a way as to cover a wider area than it would without such shaping. This also holds it back from stopping anywhere in its tracks to make deep and unwanted shadows or blots. Light play takes into account the whole wide range of the seeing field of vision. This is a determining attribute also. It does not hold up a finger or a picture, for that matter, and say, "Now look at that!"

The helps mentioned put it entirely under the artist's control to make umbra, penumbra or further light atmosphere as he wills. In an eclipse of the moon, each darkness, whether heavy or light, has its deeper shadow; it may be at the centre. Gracefully extended shading befits speaking through beauty of atmosphere. It does not interfere with it. It is the best though it may brook contrary incidentals, if these be not too defeating.

We have described a subsurfacing to the silver front that can lend its bit towards keeping the appearance from being too "sweet." The slight roughness to the plaster and its paint coatings make for a richness. Similarly, bas-relief or repoussé work underneath the silver can enrich. Properly done this need not interfere with the objective.

Think not that such meticulous preparation of the space to be featured is by-the-way. It matters not where sound is produced, the ears will hear. Catering to the eyes through a medium so fine used for a purpose still finer can well make use of every advantage.

## Historical

It is a question whether helpfulness reaches further by using narrative within the past to adorn the present. To drive a point in pun-gently could prevent a useless duplication of error. It could accent a necessity. It could guide towards the best at the starting of an enterprise without danger of a retracing in effort. Let us then make use of a bit of the historical.

On the word "sweet" hangs a moment that assuredly would interest artists of canvas and stage. Others, who so well know the full majesty of the human eyes, will note the tale appreciatively.

I had stubbornly met difficulty after difficulty. I was not satisfied. Did not the precious stone show still more perfectly that which I was going after?

I literally stumbled on the thought that right surfacing held the right answer. I asked the use of a long, narrow and windowless, so-called photometric laboratory. Such a laboratory was of a certainty light tight. Except, of course, when some snoop-ing henchman of the electrical interests (and where does their omnipresence not snoop?) opened the door unbeknownst. My second development of light-color play instrument was on the spot and, incidentally, a very old, very little harmonium also. This latter was there for furnishing the music. I lined the wall and ceiling of this long space with silver-surfaced paper. Whether snoopers were around at the door or whether it was an enemy from within, in the shape of white light escaping about the filters placed in front of the lamp unit itself, unwanted unsaturating of the color was the result. The

color was too pastel-like, was too "sweet." It was there, but not in the perfection needed.

The moment was one to make me feel weak-kneed. Had I not been a naturally brave person, I should have right then and there "given up the ghost." It was not a question of seeing a gun, all "of a sudden" pointed at my heart and head. The trouble seemed worse. It was just that the light-color spread seemed so inanely innocuous, so miserably, cloyingly honeyed, nectared saccharine, so mild, so lacking in *bite*. I was determined. I was sure there was a mighty seed within the chyme. I thought further. This was, yes, it must have been around 1919-1920.

I corrected the white-light leakage. What was more important still, I gave rein to the dark end and the full intensity end of the scale as wanted. *Then* the glory of the appearances, the jewel perfection, in all its depths and intensities, as well as shades and tints, was well nigh overpowering in its matchless beauty.

I would go away from the laboratory feeling that the unbelievable wonder could not possibly come back again. Yet on my return, by touch of the instrument here, by touch there, like a miracle of miracles, it did. The metallic surface captured all the quantas of the rays. None of them got embedded. None escaped. Policeman-like the arrangements brought them all into play, and better yet to consummate aesthetic avail.

And this without help of "Columbus-egg" contour. It was without plaster though canvas and paint did support the silver leaf. As I have said, some portions of the floor can be made to participate. Reverbera-



tion, reflection, refraction from wall to wall, to ceiling to floor and perhaps back again makes lively color that much more living. After perhaps much journeying it is brought in all its strength, all its pristine beauty within the range of vision. None of it is wasted. Such preventing factors allow no concessions to the ray's will or won't. They allow her no choice. Her beauty in its every and total charm is captive; placed at the will of the artist. This is as it should be. This is as only the skilful and systematic arrangement or adaptation of means for the attainment of the specific end makes the wanted return possible.

Even interior illumination of usual sort is generally impaired without any attempt at avoidance. The full brightness potential is lost. For the general in everyday life, the discoveries made for Nourathar have helped and can help. A light background may easily be darkened by a reduction of the light available. On a smutty and otherwise incompetent background the lost brightness cannot be retrieved. If a light source is of a brightness, gotten with difficulty in its manufacture, it should not have a shield placed before it to annihilate its seeing virtues.

Pay no attention if someone arises on a pedestal of their own making to proclaim to high heaven that such-like interior finish is too garish, too bright, too this, too that. Are the low values of a Whistler and the bright highs of snow-scene painting not both needed? The scales on the light-play instrument control all range of darkness, as well as of brightness. The artist it is who may then use any as he will. The important point is to have the setting that in-

ures not against any value of the light, either high or low. The artist needs them all for a palette complete. He needs them for depth and richness and sweetness, too. He fears not "glare" in the room surfaces, for how else could he twitter a happiness and subdue an horizon both. *He* has the *control* to deal out soft darknesses to the silver if he will. Judicious half tones and brilliance are then both available. It is well to keep in mind the hardness of precious stone. Would you forego the beauty which this gives? Do not fear hard coldness in your background. It is only hard, it is only cold when such qualities are needed.

So the aspects of the interior may be made as various as "all that and all that" under the scales of darkness and brightness situate at the instrument. The will of the instrumentalist rules. The interior must, first of all, be capable of singing at its loudest, or crooning at its softest. The purposes call for both the mellow richness of velvet and the sheen of cut glass, too. The metal on the rubber end of your pencil tones down also as twilight begets darkness on your writing. Darkness subdues all values. It is an essential attribute of the interior that any and all of the range asset be there. That any point of it be ready to be given to be exercised *at will*.

The walls must not negative the instrumental capacities that have been so carefully provided with the full and complete speaking scale. It is plainly to be understood that any room now in existence or to be built may be adapted to the purpose. Silver-grey curtains of greater or less costliness can create some of the needed metamorphosis. Metallic

silver-grey paints are also readily available. And this labor may be largely thanked for this ready availability of this paint also. You may believe it or not. You need but date the year of its wide coming.

Every shade and tint of color carried by the light scales is needed for matching the values and qualities of man's feelings. These, as is well known, are not few. The interior should make no concessions. Fine art expression cannot cope with the indeterminate and the unaccountable. It must deal with means superlatively exact as well as fine. It is a matter of jewelling feelings—literally.

From experience I know that nothing can be more ecstatically delightful than this form of exercise through a beauty rare. It is worth having the means under one's hands to capture emeralds, rubies, sapphires and diamonds in a plenty of spread. It is worth while slinging such in masterpieces of changing values, qualities, quantities, extensions and expressive weights. And all of this is subject to form; form made by time obedient to the will of moment to moment. The opportunity seems to me to belong to the supernal. You will find it so, too.



# نور عيني

LIGHT OF MY EYES

## XIII CHAPTER

### AN INTERPOLATION AS TO THE VALUE HELD IN COMMON

THE manner in which the word "sweet" was used a paragraph or two back suggests the pertinent line. "Sweet" was there made to express a state or quality in color. It was a value of one sort caused to denote a value held in common of an entirely other sort. The digression suggested is of concern to this book.

Now "sweet" stands for a sense jog catering to taste on the tongue. "Color" is a sense nudge to the eye. Yet "sweet" was the ideal, perhaps the only way, to picture to the mind that colored light that didn't, as we said, "bite" enough. It was colored light that didn't come in such way as could "scratch" at the inner man, not at least, as it might be wanted to—that it was innocuous and innocent of "punch" to a degree.

There one goes again. "Bite?" "Scratch?" "Punch?" Language is full of the like. They are, after all, a potent succor to right expression through imagery. His love soured. His temperament is like cold molasses. He is hard and unyielding as

nails. A pleasing arrangement is spoken of as "good," the converse as "bad." Such, indeed, was made use of, so it is said, to lay the seal of approval on Creation itself. "He saw that it was good."

Now "good," "bad," have a moral, a behavior connotation. They have not a beauty one. Yet, by dint of some underlying quality held by one, by the other, you understand the use, he understands, she understands.

Speech is full of suchlike figuration by word. It would seem that fuller expression through this so and such is not a matter of choice. It is in its way a necessity. I would not have known how else to suggest the particular weight of that special colored light showing on a silvered ground than by the word "sweet." Like imagery filled an otherwise missing want. This it does with great frequency.

Formal philosophy furnishes a possible explanation. Values, qualities, quantities, space, time, it says, are a common ground on which concepts

meet. They are part of the brain woof. Without them the thinking machinery does not function. A learned name has been given to these. They are called categories.

Suchlike common ground could explain imagery still more remote than that arrived at through words. Indeed to suggest through words belonging to one sense an expression in the other senses: sight, hearing, smell, taste and touch is, after all, but to float on the surface. These are but the cover to that which digs deeper. Qualities of feeling are over-spread by these. Only their interacting results dig in.

On such basic platform as value, quality, various depths in feeling can well disport themselves. There comes early the point where likening through words is not in itself fine enough, not deep enough to meet the needs, the requests of human expression. *They do not suffice.* They do not "fill the bill." Here a phrase, no matter if slang, needs to be resorted to. It would seem that fine art then called in diverse media characteristically different one from the other through which it may obtain results always more subtle still, perhaps still more abstruse. Let us cite sounds, arranged for music for example—then the plastic pigment.

We have seen these very media, taken up chronologically one after the other by the fine arts, getting more and more delicate, in their natures less coarse, or gross. One after another the still more attenuated topped a former. A medium, in itself always more akin to a centre nearer spirit, seems to have been called for. We are not now speaking of the suggestions of feeling created through these. We are speaking of

the media themselves: stone, the plastic, paint, sound.

It is through, be it said of its sort, imagery also that these media suggest feelings. It is an imagery still more progressively subtle, abstruse, complex or simple beyond the capacity of the one following the other of them to produce. The common ground persists. It persists where *feeling gets beyond the five senses in its message.* The particular "weight," "tang," "quality," "value" reaches a core nearer what we think of as the spirit, the soul. Indeed, this approaching may be what we think of as soul in a comparative excellence.

There comes always still further depths within the being. They are ties in feeling for which not only words but fine art media one after the other are found, too crude for the semblance. Still other means have then been sought and found to be needed to plumb satisfactorily that which the human heart or its innermost may feel. And I know, I know, that all these media are but used to depict a message more or less of a kind beyond themselves. We have heard of "telling it with flowers."

It would seem true that the grounds, on which value is linked to value, is a part of the fundamental texture of brain itself. Does the conjunction of value linked to value have its basis in more of the physiology, of the very body of man than the brain?

We can but delve as far as reason and reasoning may lead us. "Sweet," "bite," "scratch," "good," "bad" may meet on a common material ground, a material ground that is part of the very body of man. There is also the spiritual, the ethereal, the near bodiless. It is true that

these media, as these have come into use, get one after the other more and more penetrative to within the material, the corporeal of the body's depths. It is as though to express still nearer the innermost its subtler and finer. The common ground within in one seems well-nigh bottomless.

It is more differentiated nearer the surface. It is more of a general aura, less of the subsidiary, the subordinate or concomitant about it as it digs or reaches further within.

Then, ah then! thou light to my eyes, there came a call for a mating of sense to sense where all else was too coarse to follow. The call was for still another medium to express through.

Is it not possible? Indeed, is it not most probable that when I conceived the notion of accompanying my own musical interpretations with a lighting accompaniment that shifter in its values to the values held not only in the music; but in the music as I made it and felt it within me that I had struck a new and logical likelihood? Did I not unconsciously want and need the rays of light because they went vibrations of sound one better for completing, for pushing still further inwards the messages the sounds portrayed and conveyed? Such a one could well be a next in the order of fine art progress, with all fine art considered as a whole. Musical sounds antedating this, the more recent conception, are rougher in their vibratory effect. Light is still finer. It is still deeper in its infiltration, within the body's tissues. It is more of an aura to the body whole. It precedes the teasing of the general into a special. The general that went to make man. The special that is he.

Subconsciously, I had seized on a broader ground, as well as a more than usually penetrating and subtle one. By broad ground I am understanding that light is so very general to the eyes. It is one not of itself broken up into minute detail. Is this not the halo of imagery? Is it not mete for it to be a hand-maiden to the radiance of the inner sanctums of life—in general? I was seeking through light to match the inner kernel of the feeling the music created within me. It was a central convolution though as atmosphere to the outward form of the expression. It was to be an illumination still nearer to the truth of the ultimate depths. It could as well dome the whole.

Misunderstand not. The light, too, has its inner within inner. It has color and the inset petals of color within color. It has halo and differentiation both. The vision came as a shock. Color nuance surely could attain the right duty. Its variety is infinite. There is no lack of finding for the turning. It could suggest. It could be suggested. Its capacity is ample. It may well lend a glory to a realm still more abstruse, inconcrete, spiritual, soulful—call it what you will belonging still nearer the ultimate in centres of feeling. Verily, it is one such as the primal categories can work through. It has that with which to surround them.

Even a fish can distinguish color from color. So the individuality, in one or the other of these rays, is unmistakable. Whether the fish can or not, *we* can see even the vulgar in a color arrangement—and the refined. Nourathar is color born anew as a means of abstract expression. It transgresses no other media in this

service. No other may fill its place. None other of the means nor the instrumentalities the fine arts use may take its place. So we get a true fine art.

As regards the penetrability of the color rays to within the human body, I am told that, used as a means of alleviating disease, a choice exists as to which of the spectral colors will reach further. The blue rays are finer than the red!

Consider carefully, also, that this one has both a space order and a time order. It deploys a very concrete in using the general of darknesses and brightnesses. So the very real measurable envelopings are there. Yet is it amply ethereal for some of the bodiless that may be within us. It is a matter of expansion of mind. It is a matter of expansion of spirit. It is a fuller development in expression.

So, in this volume, we are unfolding, and so we are bringing into view the method—we are describing the apparatus, and the notation by means of which the world of color may be used as imagery of deeps within the soul. And it is perhaps still more than this.

And now, as the Lady Godiva said as her palfrey approached the stable door: "is where I approach my (clothes) close."

The glory of fine art is that it does but suggest that which otherwise could not be said. We, also, in these too few words have but suggested.

Because of its variety. Because of its penetration. Because of its general covering of subtlety. Because of their associations, their applications, their relations, the spectral colors, with all their intermixtures and shades and tints, have been invested with a capacity for carrying and conveying meaning, not before possible. Through the finest in imagery, these infinite values may be made to match and suggest value for value some of the very subtlest and deepest within us. Especially is this so, because the very nature of the spectral ray nears the core of our material being as the media used by the other fine arts neither can or may. It is an ideal for that intercommunication between us made up of the rarest and the deepest in our natures.



LIGHT OF MY SOUL

## XIV

CHAPTER



### THE FURNISHING

HE WAS a short-ish, plump-ish, motion picture-ish sort of a man. By the latter adjective I mean one who, in one way or another, had a quality of those connected in some sort of business capacity with the kissing (!) industry. This one was manager of a large but old-fashioned "movie" house in the centre of New York. To this house one of my light-color play instruments had been shipped. This was done at considerable labor, effort and expense on my part, *on invitation to "demonstrate."*

In my hotel room I made a small model of a stage set which I thought I could use. It was of cardboard perhaps one foot and a half long. With the need for reflection of the light in my mind, I spilt the aluminum paint regardless on set and its furnishings, too. This model I took to the meeting scheduled between this manager and his theatre heads. "What!" he said, "do you want us to make a wedding cake out of the stage?"

I am reminded, as I write, how this short-ish, plump-ish man was

apparently inordinately proud of his waltzing. Perhaps it was because I happened to be present—but at all events he stopped the rehearsal of an elaborate ballet to show this talent off. The première danseuse was amiable to this; she in ballet gown, he in business dress. A little circumstance, on the aside, clings to my mind connected with this showing off. The premier danseur was the husband of the première danseuse. She lifted her foot up roguishly and rounded his head with her toe. The leg motion was done facing him. He was not a tall man. I daresay she could have done it with either leg. He took it in the way of a solid backlog, comfortably stable to the greater leg-kicking side of the family.

It has been said that only a "giant" can succeed in New York—ruthless thriving New York. This is not true. Only someone, somehow in cahoots with some one of the great conspiracies based on race, on capital, on labor, on insurance, on electricity, yes even on religion, interacting withal one with the other,

can "succeed" in New York. And then the chances are that it will be only by theft somewhere along the line from the achievements of the majesty of some single human brain, that has been too utterly taken up with the accomplishment itself to mind the other parts.

Let no one think that this statement is to be taken "with a grain of salt." Unusual circumstances, such as the one brought about by this labor, only can ferret out the facts that are but too true. Under the protection of such a blanket of capital powers, even the veriest pigmy can go far. But "what price," little pigmy! Anyhow, it was in New York, and under the above circumstances, that I was kept waiting, *waiting*, WAITING, not knowing of the underground (or was it underworld?) workings. I grew more and more worn and haggard. The days lengthened into months. My sanity and health both felt the strain. I was told by a man, who *knew*, that I had been deliberately put to all this, "*so that they could appropriate what I had.*" It was not an easy instrument to purloin as you will see.

This tale, and so many, many, many other similar ones, it is well to tell as a warning to those bent on similar paths. The trail has left suicides of great men behind it.

"Wedding cakes" are not essential to Nourathar. The furnishing of the auditorium may even be quite normal. The darkness and brightness play will affect all equally. These will create the oneness of values, no matter what. However, it is to be kept in mind that any assistance to properly showing off the color ray, even in the furnishings, is a welcome and added help. Properly

considered, it need not offend the most delicate taste. As we have seen, even cleanliness counts.

When Nourathar began to be widely used, first in a parallel timing to music, the desks of the orchestra personnel blossomed out with an aluminum coat of paint. This was done as a foil for the added color showing. High sides to these stands, within which the sheet of music was placed, carefully shielded it and the hooded light above it to allow as little escape of its white as possible. These very desks, too, are a proof of my priority. Please see the catalogues of orchestra desks and the cuts of these as they were before this innovation. But remember that catalogues in recent days go undated and with loose leaves. In this way traces of what is done may be completely expunged.

The uniforms or dress of the orchestra men also changed from black or dark cloth to pale tint. These became white or grey or light tan, also, to help the color spread.

One of the very prettiest results of early light-color play was used on what was known as the screening curtain. This curtain was of a light texture with sheen. It was pulled across the motion picture frame and played on by spectral color as the picture gradually started through it. It was very lovely to see the exquisite color spread introducing the picture's coming to life.

At the same time, there was a large similar curtain backing the orchestra. This was pulled across the entire front of the stage also as a foil for the light-color play, which in this case accompanied the overture. Later a neutral grey-silver colored metallic silk or rayon curtain



was gotten wind of and then the fat was really in the fire. One large company even developed a washable aluminum-coated fabric, widely used for dance frocks, since colored light had invaded these halls, too. Large exchange was created.

The above will denote the many expedients possible as helps to the light play that may be resorted to without loss of good taste. Metal thread fabrics, sequins also have had a widespread part. What would the show window of stores have done without them? To this day a "spot" of colored light is trained on goods and merchandise to add to their allure.

One word of warning to those who might still think that to harbor color *through* and *through* the space featured is needed or desirable. Would you like sunlight glinting here and there across the lawn turned into a massive wall between it and your eyes? This desire for thickening the color into a quasi-solid atmosphere, this wishing to try being convolved or surrounded in color, as the body is everywhere within extending water in a bath, arises out of the difficulty in the beginning of getting the color ray to show at all.

I tumbled for it in the beginning, too. Perhaps that started it. Unknowing ignorance would follow anything, right or wrong. I did go in for artificial mist and corresponded with the army as to smoke screens. It now seems unbelievable.

It is this desire to show the color forth through and through that is back of the fountain appeal. But look how incompetent for the purpose of a uniform value the water spray is. At best, the result is a spectacle, like fireworks, not a means of

fine art expression. It is not color play for the soul. Continuity is lacking. The sprays are separated. The color shows up only as these fly up. The very unity needed in the impression is missing. Unity in all else goes also. The water gets the accenting at the expense of the feeling to be conveyed. Most of the values, even if played, get lost.

A chapel was built as a home for the fine art of light-color playing used as a support of the ritual and music. And in it was installed a light-color play instrument of my own manufacture. In this hallowed home of a lovely purpose, glass blocks and artificial glass rods were used to charming advantage. (Please see the cut of this.) The altar was made of the glass blocks. The reredos of charming design was constructed of the glass rods. Chairs and even tables are now manufactured of glass support and could in their way, if wanted, help to reverberate the color produced.

Artificial glass sometimes seems to have a capacity for harboring the color through and through. The color fills the entire space of their diameters. As incidental within the general this would have its bit of charm. Many beautiful assistances will be found as right reverberation helps.

Nourathar is of interiors. The spectral ray is jealous of the circumstances with which it must be provided to appear fittingly to the purpose, or even to appear at all. Suitable furnishings may be a help. These vary in kind according to the purposes for which the interior was planned: church or chapel, theatre or high school hall. The central and most forward point on which the

field of vision rests could well receive the chief consideration.

Good art rules over the matter of the furnishing, also. This consideration need not be confined to the stage. The equipment in all the space could receive its own reflective consideration. The general background in walls and dome that has been described will tie the whole together, no matter what, but every help counts.

The glass blocks must be rid of their yellowish alloy. Such alloy tinge is an enemy to both the true blue and true green and, of course, has its effect on the entire color scales. The receiving medium will or will not co-operate according to the degree of its suitability. Do not let yourselves be antagonized by newness of suggestion. It makes for an all-around progress. It may not be of just the immediate necessity in mind. The suggestions will join up to still other uses or needs.

Nourathar, as has been denoted, has had a wide reciprocal effect. Not

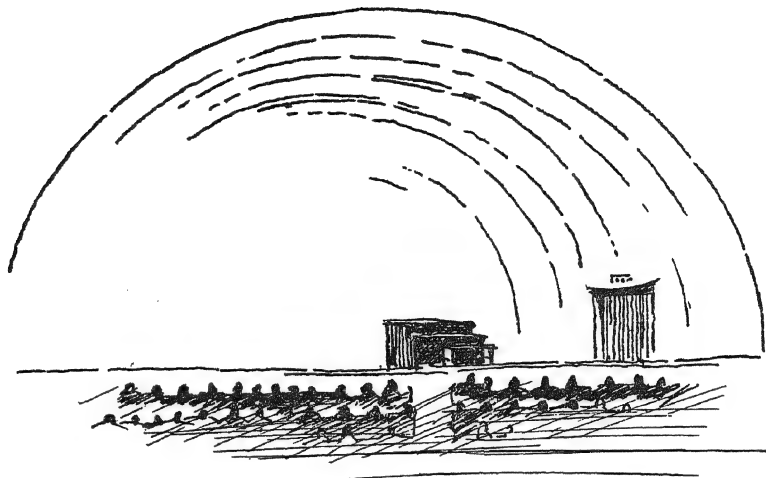
only on materials and objects that can help the art by co-operation but in still further fields. Window shades made for effectually blocking the outside light for X-ray rooms could be, for this purpose, metal surfaced. Glass bricks have redounded to the benefit of the art.

So it is that a serious labor germinates efforts that are far reaching. These grow into an ever-widening benefit. They help to bring life, we hope, nearer the perfect, the absolute. This is, of course, providing there is no cruel and artificial stoppage of desire for making the individual effort. It would be very, very sad should individuals cease to have any desire for fame.

Here we are in a fashioned interior capable of shutting out the light of the outside Universe at will. Here we are with a supported surfacing and furnishings that can show off the color scales in their myriad gradings and mixings. These may be used to high purpose. On with the art.



## XV CHAPTER



### “LE PAVILION COUVRE LA MARCHANDISE”

#### *Lineaments of the Art*

**L**E PAVILION couvre la marchandise.” This was Napoleon’s way of saying: “The shelter has its say-so to the goods.” We have described a shell such as a mother-of-pearl might envy. We have stated its reason for so being.

#### *What Is the Purpose of the Shell?*

The ideal of this shell is to feature the well-nigh miraculous beauty of the spectral ray for itself alone and for all that its play may express. Being a matter of space the picture phase is not avoided. Even a wall or floor is a scene. Within this framework these rainbow rays are to disport themselves in all their pristine beauty, unalloyed, unspoiled, intensified, guided. They are controlled, reflected, refracted, dedicated to a high and new purpose. And this in a gamut not known or used before.

Just to bring this appearance into being, without other excuse for existing, in its perfection and spread has taken no small vision and labor.

This fact of the effort entailed is being made of especial note. It is large, irrespective of the use to which this, the strictly external, aspect is to be put. The wide continuity in the spectral color spread carried also its testimony as to origination. *It did not exist prior to the reason for its coming.*

#### *The Nature of the Art*

The interior, as it is described, circumscribes the art. It defines, and beyond peradventure, its broad nature, its aesthetic contours. The whole within of this shell may be allowed to participate. The rays are not restricted but by the qualities, values, and expressions that these may be made to carry from moment to moment. Such are the fundamentals. They are not confused by anything outside them. The shell’s shape only confines and holds.

The features of the enclosure, being new, carry their own testimony as to the newness of the objective itself which they are meant to help

and make practicable. They are the covering points to the entity and intent of that to be brought forth in practice within it.

A typist once transcribed the word Nourathar as "none other." So I can say that of such is this art and it can be none other. And as Nourathar, I am free to say, there can be none other.

### *No Evasion Possible*

By such precise definition of the enclosure I straddle not. I burn all bridges behind me. I live or die, sink or swim, survive or perish, through the fact that the light play is the all. Interjections of any sort whatsoever must not interfere with it, or it ceases to be. They must go hand-in-hand with it, if at all.

I took the chance on the trueness of ring of the conception as visioned within my mentality. Time has proven its soundness. It is of a health so true that even travesties on itself point to the worth. The livingness of its results has been established. Its value breeding has been great beyond number to compute. Keep this money potential well in mind, please, in rating, if not the worth, the exchange value of that which this book would cover. I need not pussyfoot. I am too certain of the subject. I know, without shadow of wiggle-waggle, where it and I stand.

Nourathar does not depend on a magic lantern performance, whether such images are projected, lengthened, squatted, doubled or fashioned through motion picture. The picture-making art by any means in its entirety is old. This one knows also that it cannot make Siamese twins

of the eyes and ears. It cannot make vowel sounds or notes of music operably stand for colors. Though broader than all these, it is thoroughly distinctive in its liberality in a new and original way.

### *In What Does the Art Consist?*

In general, the art in the first place consists in producing the essence of all color: the spectral ray. And this in a trueness devoid of all the vitiation with which it is usually accompanied. It is produced in a quantity that may cope with an interior complete to surround, when need be, the whole range of the seeing field of vision. Such color trueness only the precious stones have heretofore shown forth; and look how these have affected even the history of the world in their diminutive and passive way! Indeed the precious stones do not equal even these root colors in number. This, it is necessary, it is by the way, to mention. The combinations, the shades and tints made by the ray are so numberless one would not expect stones to reach up to them. Of course, the stones are more or less accidental in their making. In this light-color making nothing is left to chance.

It is romantic to note that the "big six" gems: diamond, emerald, opal, pearl, ruby, sapphire, do not include violet of sorts or yellow or orange. But then from the ray's basic character every color of any sort stems, even that of these. It would seem that it has a strong potential outside its showing to the eye. Cross a cantaloupe with a honeydew melon and the yellow of the cantaloupe persists, though the

taste and flavor merge. Is the stuff "color" stronger than the stuffs of taste and flavor? Is the sense of sight best equipped? I would not at all wonder if this were so.

So then the art produces and uses the color rays in all their nudities. These are not altered, not clothed by matter outside them. They are the sole actors in the dramas they inspire, *no matter what mayhap to be interjected within or with them.*

### *Beauty of the Apparition*

There is not the least doubt that the extreme beauty of the apparition, in its beauty attribute alone, is a firmly supporting factor of the appeal which expression through it can be made to carry and its value for such. Its production is not a simple matter. Once brought into being, it has much with which to carry the day.

The ways of the interior described make plain that this loveliness is shown in an extension, a flexibility, a variety not before made to the extent and degree the art has developed. It is a new posing of a material only uncertainly known, occasionally glimpsed before. In the full intensities and continuities that this art has made a matter of course, it is an appearance that beggars the like in both the world of affairs and nature.

### *The Quantity*

The large quantity of the rays the art produces is to be remarked. The walls, the ceiling, possibly the floor, should be capable of being a foil for or clothed with these. The entire seeing field of vision is taken into consideration. And this in a unity of manner broad and unconfused.

It is true that the light values need not cover the all but when a climax may require. This mistake of not allowing for discriminations in the *extensions* used has been made in one of the world's outstanding palaces of entertainment. The artist at the light console may start his play with but the least glimmer at the front or he may feature the whole progressively at will. He may carry it further along or further up or down within the space to suit his expressive plan. This wholeness is the gamut entire, but may be restricted to less of the space as a sop to lack in sufficiency in the aesthetic tools, or for other reasons the particular occasions may require.

The specifications gone into make plain that the Nourathar artist is given a range, not short of the all about, for reverberation, reflection, refraction of the quantas used. In fact Aladdin—like it allows him to turn the arena of his play to something akin to a huge precious stone and many such—the all so great as to allow his audience to sit within.

The interior described is to be made to change chameleon—like at the touch on an instrument. This is to be done in obedience to the meting out of the sensory desires of the aesthetic will. This conception guards itself jealously from any confusion infused into it. The play is of a living jewel not restricted to the rays of any one of the precious gems but to all the gamuts the spectral cycle can present.

### *Difficulty of Definition*

It is well-nigh impossible to make any generalization descriptive of any one of the fine arts. To be told that a series of tones, arranged in a

scale, forms its backbone, would effectually blank any possible notion of music. Similarly, say that words that make it are formed into lines, which one way or another balance, and any idea gotten of poetry is nil. The reader will reserve the right to conclusion till such time as he has seen results in practice. All the largest metropolitan areas will give him such opportunities. Smaller towns will have their high school or college auditorium in which a suggestion is given of what the best in this art could show. Like the other fine arts, Nourathar must be sampled to be known. Lucky it is that practice of it, in conjunction with a dance conception set to music done here, there, and now and then, may have jogged some idea of its wholeness into being. Have you happened to see?

#### *Values, Qualities, Nuances*

It is known that even the secondary transmission of the root color, through dyes, shows varying, qualities, quantities, values and nuances. In this art it is such made through the color of light itself that are played. They are flexibly, insensibly produced in a change from moment to moment. This is done as an accompaniment or contrasting or suggesting of suchlike categories in feeling. We are told that value, quality, quantity and further are fundamentals of all conception or knowledge. Together they embrace everything predictable or existent. There is, therefore, the basic link between the art and the this and that whatsoever.

#### *Quality Concrete?*

I remember distinctly once dream-

ing of the quality-value of a concept or circumstance, unaccompanied by the concept or circumstance itself. It was so astonishing I wish it would happen oftener. In my sleep I felt the composite qualities—such as may be gotten, let us say, through the texture, the aroma, the beauty, the feel, the taste of an apple—fallen short of the sensing of the apple itself in its body. It was on a par, I take it, with the description made by Robert Louis Stevenson of his having dreamed of the right form a drama should take, without the drama itself. It is like entering the aura, a subtle emanation or exhalation of an integration concrete, yet not simultaneously present.

Time, too, is one of the categories indissolubly connected with the furnishings or sensings of the mind, and time in this play is the body of the art. It is this that shapes it. It is this that gives it form. And so is begotten the all together.

#### *The Silvered Surface*

So, on the silvered surfaces, Nourathar makes a "writing on the wall" of the inconcreteness in warmed sensibilities through the stalwart concrete. "Writing on the wall" is here used figuratively, of course. It is a tracing solid in a passing. And, of course, the walls of the material boundaries are not the all. The world of color in its primal essence is displayed at will. It is invested and made fraught with meaning. The artist makes this expression aimed from the bull's-eye of his heart to the centers of the others' centres of affection and of mind, too. He completes the mansion by making it glorious for the jewels of the soul. The art has already filled a

new place. The world would miss the forward march of an apotheosis-of-at-home erected for noteworthy feelings beautifully clothed. In the play, walls and ceiling and floor cease to be. They are but the carriage that takes one to the view.

### *Sufficiently Palpable*

There are those who will wonder and will question a sufficient palpability for expression by means of values in atmosphere alone or as a chief element of the expression. They need not. One has but to step out into a twilight outdoors to gain the peace. The sky is not thought of nor the circumscription to galactic systems. Perish the thought that it is a sign of decadence. The stronger, the finer the man, the stronger, the finer his quality essence, too. There is a strength in fineness the roughly strong must envy. And here we also have, besides the color itself, its dark to super bright held in leash; driven like Aurora in chariot splendid. For this art through atmosphere is made of a material supernal for an efficacy celestial. It is wonderfully fraught. It is pervasive wanderingly.

### *Its Combination with Other Means of Expression*

Nourathar, in combination with other means of expression, now needs no proof. It calls for no argument. As to light-color play speaking by itself alone—what better *binder* can there be of feeling of one to feeling of another than a bodiless undemarked joining through a playing of something similarly fleeing the rigid. Perhaps what we know as the life within the body is but a tying to-

gether of the interwoven mechanisms of the one life with its other selves.

I vision the time when Nourathar will be practiced of and for itself alone without other parallel accompaniment. This will be long in developing. A much chastening of man, as through war, would hasten the urge of desire for its serenity, its quiet and penetrating repose.

There will be times when the head and heart pressed down, weighted heavily against the breast of the Universe, through miseries and sorrows, will want griefs and woes assuaged by the healing quietness of graduated darknesses. This may be brought to them in most exquisite guise. Their joys will be enhanced by lightened brightnesses. These played for the sake of themselves alone, as we have said, may follow a prostrating chastisement. Perhaps this practice will be a shining star—an indirect, luckier result of this present battling and grappling, unnecessary and frightful as this is.

And so, in this art, the content is poured into, is molded by a form made, unravelled, developed through *time*. It is shaped as poetry is modelled and given form, through successions of moment to moment. Its manifestation is created by what happens, by refraction, reflection, intention made visible through service of space, not consciously taken account of. It consists then of the dynamics of light and light-color only. No one, who has seen this art even crudely practiced, can doubt the logic and efficacy of its being.

And by all these virtues will come, indeed has come, the aesthetic demand.

# Ownership Proof

## XVI

### CHAPTER

LE PAVILION couvre la marchandise," also implies, "The shelter points to the ownership of the goods." Should there be one who any longer doubts the source of the origination of the art, I would ask him: "Has anyone before, prior let us say to the last twenty-five years or more, seen any light-color in a widespread and unbroken continuity? Has he seen such produced for any reason and by whatever means? Has he seen it brought into existence irrespective of any reason? Has he seen it made to appear this side the stage? Has he seen it tuned and mentored unbroken to the whole range of his seeing field of vision? Has he seen a special surfacing devoted to making such color even visible? Has he seen a complete darkness made for its showing? Has he seen it or heard of it or read of it as made for its own expressive sake alone? Has he seen its changes played to a timing flexibly obedient to the throb of his pulse and the phrasings of his lungs? Such is the timing of beat and bar and stress and metre of music and poetry. Has he ever seen so flexible a timing and withal so subtle hurtled against so rigid a frame as space? Has he seen it under a oneness of control?" It is

now made known in all these characteristics. He must ask himself how did this happen. The answer is plain.

He must know that the ray itself supplies its own obstinacies and difficulties. It is most especially so when caused to appear in great quantity in a continuity. Miraculously beautiful, the ray itself, nevertheless, knows nothing but to bat off at angles and he must realize how soft and rounded are human feelings. Then how an encircling sharp-cornered awkwardness must be tamed into suitable showing for these in the very nature of the interior.

#### *The Labor Long and Hard*

For this and many, indeed for uncountable, reasons, the labor has been hard and long. Those working in any of the above lines will know and understand. It has beckoned, nevertheless, to further trials, further effort. The individual vision had before it the exquisite promise of the "will o' the wisp." The promise gets enlarged as time goes on. Had the eager and anxious creator and investigator known in advance the supreme difficulties to be met, I doubt whether her legs of action would have carried her through. Try and



visualize the difficulties met in what has been done as you read.

The fine art is indeed inconceivable up to the point of its having had a lifetime devoted to its development and nurture.

### *Belongs to This Age*

It is true that Nourathar is an art which no other age could have found of greater, perhaps insuperable, difficulty in spawning. (Spawning seems not a pretty word to use.) But, then, it might easily not have been made to appear in this one or at all. As it is, its star is clear and distinct. "Enfin" it is largely defined by the specifications given of the quite arbitrary mansion where jewelled feelings may best be caused to home. "Le pavilion couvre la marchandise" in more than one sense.

Nourathar is still new. It is so ageless that so far it has gone but a little ways. Its method claims, and the apparatus claims for producing the method, have been accorded this author, by a seemingly grudging and much seeking for-a-reason-to-withhold, by the patent office.

Like all fine art it is "a-tisket, a-tasket, a green and yellow basket," but then like all fine art it does renew the hope. It does resalve the soul. It charms and rests and delights. *It has earned money. It has created exchange.* It is based on the tangible, the mathematical and the exact reasoning. Its money return can still be made great beyond hope of avarice.

### *The Artist Now Owns*

The perpetuation now passes on to the artists practicing the art. The interior, after all, conditions not all

the factors. Not even the color phase is an absolute essential. The "black and white" has its worth-whileness also. But the seraphic, the transcendental, the well-nigh heavenly beauty of the color lends a value of towering appeal.

The nature of the timing is vested solely in the artist. The basic cause of this ties him to his audience. His pulse writes on and through a silvered interior. This makes still plainer the epoch-making novelty, and further proves the invention ownership.

The artist may now be king over the art. The field of furtherance belongs to him. It is his by various rights. It is his by right of the general arduous training that is needed to fit him for this high calling of artist. It is his by right of wanting more than anything else to be an artist. It is his by right of his having the capacity to express.

### *The Electric Stage Workers' Union*

Opposing his hopes, a visible monster looms. It dares challenge his rights. It is bolstered by an utter incapacity of sensing the harm it may do him. *It is the electric stage workers' union.* "Forgive them, for (possibly) they know not what they do."

Strange how the world moves! The exclamation has nothing to do with the earth's axis or its travel about the sun. It has to do with laborers getting into or putting themselves into a position to effectually block the progress of a fine art. No less.

The electric stage workers' union is one of the most closely knit, closely held labor organizations. This union does not put a protecting umbrella

over all those of their craft. Not at all. It allows membership only to that number of them that can keep the field of a size to maintain the high rate of wage they command. Thanks to the drawing capacity of the large emporiums of entertainment, due in large measure to the colored light spread and its featuring, these wages are very high, even as wages now go. These men are not even expert mechanics. Their nickname among themselves is "switch pullers." They pull a switch or so at the buzz of the conductor. They know not music. They know not the a, b, c of fine art expression or practice. This has not been their vocation or indeed a vocation.

A good thing having come their way in the guise of pulling switches, they effectually block anyone else having a hand in the handling of light-color play. Wherever their union flourishes, which is pretty well everywhere that colored light is featured, they stand in the fine art's road. Or they did, once upon a time.

The walking delegates and the heads of the large electric companies *understand each other*. In this matter, they had a common interest in blighting much with their own lack of expertness in the matters pertaining to the aesthetics of the subject.

They decreed that no one but they should play the spectral beauty. No one but they should provide the instrumental means, no matter how crude and incapable. This was tantamount to having labor, that put a pipe organ together, say that no one but they should play it. And indeed that the expert in organ-building also should have no say in its making. Conceive the varnisher

of a violin, by that token only, playing it.

The fine arts take a life-long training for their right presentation. They take carefully guarded and guided hands. This dictum of labor played in well with the grand idea of the electric aggregations. They knew a good thing when they saw it. In their artificially aggrandized position they felt that the good was that which they autocratically ordained; such productions in value belonged only their way.

The electric stage workers' union was but another means for policing still another door that became open only for them. Yea, even though the door led to another's ownership of the premises. He, the owner, thus became at their will prevented from entering where his lawful rights lay. Behold another signpost within the extraordinary signposts of the time.

It seems to me to have been well said in the following: "Money has become a medium of control and ceased to be a medium of exchange, by the operation of which the fruits of honest labor are destroyed through dishonest valuations and poverty is produced in the midst of plenty."

So, it is known to whom the creation of the art belongs. It is known to who its fostering should be relegated. Perhaps not government but conscience must stand guard. To make the facts known should clear the road. It should do away with the infamy, and other similar or possible infamies.

### *The Artist Blocked*

So the artist was effectually blocked. Poor thing! It was not enough to have his way stopped by poverty, by the great difficulties of

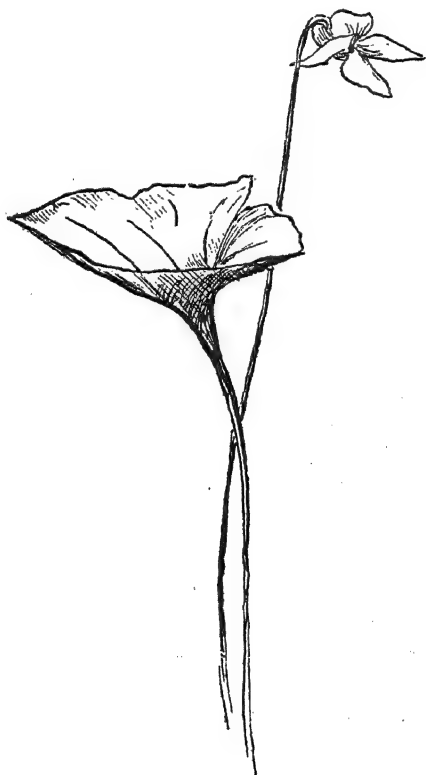
his task; he must forsooth bow to the laborer and the monopoly head. Needless to say that Nourathar has suffered and how! All this reciting is also needed in a compendium. The public, as well as the particular man, should know. Perhaps, together, they may do something about it.

Mayhap the art will, nevertheless, properly arrive. When it does, its right presentation will not go in one eye and out the other. Its memory

will linger. It will seep deep and far into the corticles of feeling. It is in its very essence supreme.

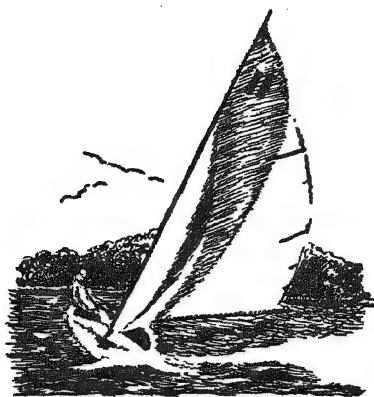
Should the present makeshift practice of this fine art be destroyed by avariciousness of one sort and another; should it be prevented from transpiring for a long and fruitful reality, the other arts could well weep: "Ma chandelle est morte" and "je n'ai plus de feu" and "Ouvre moi ta porte pour l'amour de Dieu."

There it is. Take it or leave it.



## XVII

CHAPTER



### SECONDARY RUMBLINGS

*Tracings within the woof of history*

**L**AUNCH a word anew. If by connection picturesque and arresting—see how like a gay little sailboat it goes skipping along the wavelets of current print; reflected, dripped off the flowing fluid of a thousand pens. By novel conjunction, by content, it had been given an imagination—provoking rebirth. It was reinvested by a new use and so it meets an unsuspected reverberation from direction after direction. Otherwise it might have remained quiescent. It now becomes a testimony—a witness in history, a record for proof. It had been a neglected word. How did it perchance happen that of a sudden it was found so available?

I shot the arrow "*Mobile Color*" into the air. Who else could? It suited well a special, new and budding vision. It suggested color created into a state of obedient *all around* in and on flux—fluid in space. It was to show itself without fixedness in materials and stuffs.

Be the conception that starts the avalanche fertile, pregnant and with a universal tang, a good librarian

will be able to spot the very year when the phrase launching took place. At a day a myriad of blades shot out gleaming into the sun. They were cutting parts of edged tools made up of a word returned over and over again. Its sudden wide use was born of a root happening. The sensitized plate of the general mind showed its having had a consciousness of this. The leading this coming induced was unmistakable.

There was a new idea breathed into the two common words above mentioned. They had been uncommonly linked. Suddenly, they rose up on wings singing together *and separately*.

Let us say "mobile" is the winged end of the arrow; "color," the tip. It was to be expected that the pointed end of the word duet should land, as it did. What was not to have been looked for was the manner in which the lodging of the infixed tapering end dragged its other word partner into the open. "Mobile" was the provoking adjective, it is true. It gained a push of its own, not to be explained by its previous torpidity.

It had been in a quasi-dormant state of use. It now got up on its three vowels and three consonants and deported itself famously.

In daily paragraphs of print, in advertisements, in signs, in all manner of current publications; here, there, and everywhere, it piped a day all of a sudden with a detonation both incorrect and true.

There was "mobile zone." That seems a distinct misuse. "Mobile gas," "mobile lubrication," "mobile oil," indeed "mobile *mind*" questionably came about. Then the war. With it a "mobile" avalanche. Everything on wheels was labelled "mobile": units, trucks, laboratories, churches, blood, fleet, "mobile blitz buggy," "mobile pillboxes," "mobile balloon" (that might be more like it), "mobile guards" and "mobile municipal officers," "mobile laundries," and to cap the climax "mobile conduct." It would appear that the word was a misnomer for conveyance on wheels. If such were mobile surely their contents would spill. And so the dictionary definition got tainted also.

To use the same word to express kind and quality of movement for the substance "oil" and the object "truck" seems to me not to be serving language at its best. The distinction or observation of difference requires other vocal symbol or indeed two. In my word feeling "mobile" suggests possibly simultaneous free movement in more than one dimension: two or three or more. There is a mobility in the waves of heat or even those of water.

The wing end arrived. The tip had led it.

If "mobile" came in avalanche, "color" was a deluge. Typical clip-

pings would fill more than one volume. Its hyphenations are suggestive. "Color-scheme" arose on its end and pawed the air. "Color-scheme your desserts" is enough of a sample. Then "rainbow" was substituted for the root basis of the "color" popularity and there came about "rainbow dance," "rainbow rooms," "rainbow night clubs," of course, "rainbow restaurants," even "rainbow military division." Rainbow this and rainbow that.

The word "color" was used to help such sentences as the following: Instrumental players showed "complete mastery of color and rhythm." A musical composition, it was written, had "facility and considerable color." "Mobile" and "color" were two simple and unenlarged words. Together they created an unbelievable ferment.

### *The Fruitful Cause*

To the one who had watched from before the beginning, a finger pointed obviously to the cause, the why, the dating. The track was known to start from a larger end. It was through the conception new that the fancy had seized on the wielder of words. A fertile seed had been dropped. It fitted the pen of daily life. Nothing so well proves the capturing of public attention by the labelled germ that brought it all about.

Indeed colors were suggested as an aid to memory. A child was taught a melody by pinning each note of a theme down with a color name.

### *Actual Light-Color Using*

And not only through words did such streaking show invasion of the waters of the composite mind, as any

fluid different in appearance to water does proclaim itself till completely fused. First it is a jumble of permeation, then the purity clear.

It took but the one demonstration by myself of a bit of mobile color before the National Convention of Illuminating Engineers at the Bellevue-Stratford, Philadelphia, in September, 1916, for this power wielding electric congregation to open wider flood gates.

The jaunty mind of one of them let loose that there were many show windows and but few concert halls, whereupon the exquisiteness of the color ray was made into a sort of universal dishrag. It invaded windows as dressing wherever goods were on display. Automobile sales emporiums were in full swing. The hard-polished, showy bodies of the cars made an ideal though haphazard foil. The cheapening became universal. A very pandemonium of colored light was let loose. It provoked thought and started a far and wide secondary resound.

The dye industry took note. "Color" got fixed in the substance of well-nigh every object. In the "Queen's kitchen" and the "King's counting house," not forgetting the clothes the "maid was hanging in the garden," and wearing, too. It appeared everywhere crude and glowing. Toothbrushes, pots and pans, fingernails and—"do mention something that was exempt."

It was a deluge that overshadowed the historic one that lasted but a minute forty days. Color, color everywhere and not a drop to drink, if you understand what I mean. Not a bit for the soul. Let no one think early antediluvian fountains or primitive musical comedy had anything to

do with it. They hadn't. I saw the best that was had in fountains. I know the state of the incidental filter curtain and its negligible count. There was nothing that could be called prior. The courts said it. They had to. They made excuse through what was a pitiful, an un-availing step in one of my early experimental trials made in the effort to just get the color ray seen. By this expedient they prevented the collecting of a well-earned reward.

It was the featuring by myself into a romantic prominence the antecedent of all color, its root cause, that brought forth this unlimited stirring. They do say that money talks. The increased business shrieked. The full story has been told elsewhere.

Such wanton behavior of color plastering everything is not seemly. The avalanche was bred of the monster: *quantity production*. Must everything be swept into its maw to keep it going? Look at the fineness destroyed in the process. You will be able, as you read, to think of other wanton color spreadings.

*The use of the words mentioned denoted the general awareness by a dim and half-baked consciousness of a new idea—on the whole easier to denote in words than to do. They tintured wordage. Later on literature felt the flavor.*

I have a subtle sympathy with the old painter taken up as a possible spy! from the dumps of a big city's environment. He explained in the station house: "As an impressionistic painter," he said, "I am not so interested in form and structure as I am in expressing the play of light on objects—on such things even as sodden paper, shattered varicolored bottles, smoldering garbage, wisps of

greasy smoke curling into the sky—there was a mound of burning refuse, an amber colored symphony with light disintegrating on a turmoil of trash.”

### *Color Linked to Parallel Values*

Simultaneously there appeared an increasing use of such literary imagery as linking a value in color to other values. One in humorous vein, I quote: “Red neckties are for those with strong desires and a liking for action and excitement. He walks out of the way of any man wearing a yellow necktie who has a hankering to reform others and convert them to his way of thinking. The green necktie men are for those who like to belong to clubs and societies, read the books, see the new movies and plays. They also know the value of money.” Then last and not least: “The orange tie with red stripes and yellow trimmings is for the good salesman and intellectual type with strong desires and a liking for action.”

The trail gets hotter. Sense values became linked to spiritual colors in words. One example will remind of the many seen. From a current book by a distinguished author: “All the sky to every point of the compass became a *soft* blue; so in the end it was tenderness that triumphed.”

The psychological laboratory took notice. We read the announcement of a new machine “that measures emotional tensions, white lies, and color reactions.”

Then the idea that had hyphenated the twinned words: mobile color. From the short story in a daily sheet: “It was a quiet waltz and the lights had been dimmed . . . The music had stopped again and

the lights were brighter.” In my first demonstrations I had nailed down the meaning held in the light play, by music made in parallel to it. The thought of its being used for and of itself alone came through the very palpable beauty held in the accompaniment showing, irrespective of that which it was made to time with.

### *The Crude Practice of the Art*

Currently to the various ferments suggested by the foregoing was the very crude practice of the art itself. It was travestied. It was seized too eagerly for a quick and easy gain.

The daily print furnished from the beginning a high testimony as to the worth of the labor on which this book offers enlightenment, instruction “and rests.”

As a by-line to the story whole is the testimony. Launch a really big achievement—and there is no limit to the kinds and ways, little and big, remote and near, humorous or fragmentary, with which it will leaven the lump of life, stimulate and strengthen its energies.

### *A Printed Testimony*

He was a newspaper GENTLE man. And, because of the extreme fineness of his mind, nobody noticed the locomotor ataxia. He was editor on the *Philadelphia Press* when he took note of my first attempts to *give my own music interpretations a ray support that could be as fine and, let us say, ethereal as the stirrings I felt within me were, which I played*. This was very early in the century. Years afterwards, when the Courts found themselves obliged to say the arrived and patented accomplishment was mine, he was on the editorial staff of the *Philadelphia Bulletin*. It

was no little triumph. The Courts had become swayed by the expediency they fronted, as well as by the immensity of big business under single control. This and that had gotten them into a position where they could but with difficulty call their souls their own. Some of them were proven not to have much of any souls with which they could be credited.

The *Bulletin* was a paper in the classic class at the time. It was rigidly driven by the fine hand of its editor-in-chief. It was known far and wide as strictly honest, distinguished. This editor-in-chief, now deceased, had made of it a sheet looked up to, alluded to, even indeed as a reference work.

This is how Mr. J. Michael Duffy, the newspaper gentleman mentioned, definitely bore witness in his editorial page column that no one in this or any other country antedated

me. He had luckily watched my work from its very beginning. He was, indeed, a "newspaper GENTLE man with a brain so fine that nobody minded his locomotor ataxia." This was how he ended his editorial in the *Evening Bulletin* of January 16, 1932, about my rights to the labor he had watched over all those years. First stating that I antedated any American or foreign attempt he went on:

"But apart from the judicial decisions the record is that the thought of the interpretive attributes of color which came to Mrs. Greenewalt in 1905, and which she nursed and nourished to its full development, has spread and made itself manifest in so many forms that there has come almost a new age in the appreciation and use of color in aesthetic and emotional influence. And imitation is, according to the adage, a sincere compliment."





*A momentous, a significant testimony within the art. A formal indorsement of the chapters immediately foregoing quoted in full.*

## EDITORIAL FROM THE EVENING BULLETIN OF JANUARY 16, 1932.

PHILADELPHIA, PA., U. S. A.

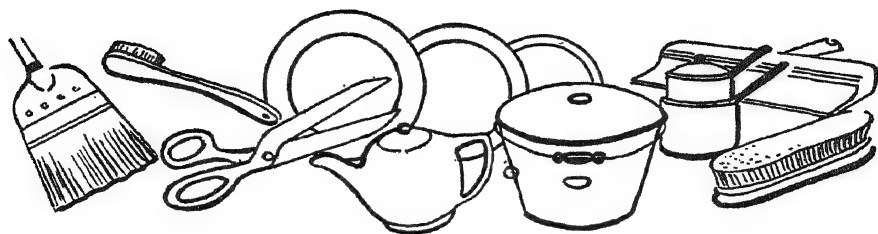
Both the Federal and Circuit Courts have confirmed Mrs. Mary Hallock Greenewalt's (Hotel duPont, Wilmington, Delaware) priority of right in the conception and development of the co-ordination of light and rhythmic sound in the interpretation of thought and the perfection of method.

The typical U. S. patent claim in process of adjudication was "the method of combining sound and light for aesthetic expression, consisting in producing audible sounds in timed, rhythmic relationship, flooding with light an area within the area of audibility of the sound and simultaneously producing gradual variations in the color and intensity of the light in timed relationship with the emotional or aesthetic content of a succession of such sounds."

Judge Morris held Mrs. Greenewalt not only a scientist but also "a true artist, who, knowing that no sound finds in any specific color an exact counterpart, recoiled from the thought that specific colors arbitrarily and inflexibly tied to specific sounds could serve to interpret the shades of thought and feeling of music or enhance its emotional and aesthetic effect. She realized too that few musical compositions excite in every director or performer the same thoughts, feelings and sensations and that each director or performer must be left free to express through varying intensity and color or light his or her own interpretation of the composition rendered."

Judge Morris acknowledged the distinction and priority of Mrs. Greenewalt's conception and its product and THE APPELLATE COURT TOOK NO ISSUE WITH THIS FINDING.

But apart from judicial decisions the record is that the thought of the interpretive attributes of color which came to Mrs. Greenewalt in 1905 and which *she nursed and nourished to its full development has spread and made itself manifest in so many forms that there has come almost a new age in the appreciation and use of color in aesthetic and emotional influences. And imitation is, according to the adage, a sincere compliment.*



## XVIII

### CHAPTER

## THE TRUE: THE UNTRUE

**T**HERE are noises. There are sounds. There are musical tones. Such waves or vibrations in or of atmosphere may have some relation to pitch, true or untrue. They may be rough, hard, ugly, uneven and uncertain; not conforming to any rule or standard.

The high value and extravagant beauty of the spectral ray, well publicized by announcement and showing of a lofty use, brought its own avalanche of what might be called vague, ugly, irresponsible, ineffectual, inefficient, inefficacious, useless and vain echoings of what the true jewel color is.

Some instruments used now in jazz bands find a value in their capacity for having their notes emitted out of tune. Properly done, which is rare, such could have a share in helping along expressive values. Not even that could be found in the heterogeneous plastering about of a would-be ray color that had been suggested by a true and novel high use of itself. These head waters, these rays,

these sources of all color were falsified, were betrayed here, there and well-nigh everywhere. This happened in many a spot and occasion not in "rhyme or reason."

Such reverberations were behind, were far short of the worth-whileness of pigment for kitchen soup ladle, or tooth brushes.

"Painting with light" was seized on as a good suggestion. Much of this turned out to be nothing but *lighting up paint*. The two are not that which could be called synonymous.

One whole Exposition had the walls of its various exhibition buildings daubed with paint and then spotlighted. This must be called a fraudulent begging of the meant intent. The nobility of architecture "got it in the neck" by the resulting smears. This may have been ignorance. It may have been dishonesty getting a shade too bold.

The result was not even a true murmur, ripple or rattling of color ray. It was by far not even what

bells, chimes, tinkling of cymbals or roll of drum are to the trueness in sounds of music. They were not even a complimentary re-echoing of the real thing.

The artist has more than once heard something of "trained minds." Indeed, it has in the past been hinted that he had not much of a mind, trained or untrained. It is quite true that one schooled to think with logic in his own field of endeavor can be entirely at sea when tackling a range of thought covered by a subject both integrally and generally different. The above might have been a sample in case. It is generous to think so.

As past chapters in this book have told, it is not a simple matter to prepare the various grounds that can allow the spectral ray even to be seen indirectly.

In the matter of walls of Exposition buildings, competition in the outside by a vast amount of the white of the light cannot be avoided. Such attempts at pretending to the reality of light color indirectly produced in a spread were footless and useless. Such bit of spectral medium itself as did have any effect becomes an intermediate in quantity, quality and degree. The result is a mediocre travesty on itself. The lighting up of paint and other colored surfaces was an indirect proof of the parent origination. There was a desire to accomplish easily that which was far more difficult to do. They were a testimony as to being aware of the novelty of the notion.

The words "painting with light" can mean two entirely different ideas. They may mean a process like unto that of a mechanic covering walls, girders, panelling, or what have you,

by paint carried on his brush, or these words may mean the conveying of meaning such as an artist does on a canvas by means of easel, palette and brain matter.

"Painting with light" of the first sort was carried out with greater or less success on water of fountains. The taste was questionable. It was ambitiously done in a number of places in various parts of the world. The clearness and translucence of water, if existing, did give a capricious and freakish foil for the color of light to show on. Continuity was lacking. There was meaninglessness in the attempts.

It is untrue to say that "there is expressiveness of light in sunsets." These are more like coloring water in fountains, or no. Sunset manifestations are outside the human, not of him. The scientific basis for this statement will be exposed, let us say expounded, later on in this work.

This development of the fine art of light-color playing should put a stop to ignorance being bold in the matters concerning it. Distinctions cannot be avoided where the objective is so fine. The utter novelty of the launched idea of using color of light as a means of human expression is proven by statements thrown off at random by those not of or expert in the subject.

There is in truth no such thing as modelling with light, in the sense of creating form through the play of light. The term is a misnomer. It is as untrue as the pretence that lighting up paint is painting with light. Light in a trueness of its color is a different matter from slant of it in a photographic studio.

Perhaps still more savage was the suggestion of color-lighting sculp-

tured pieces, figures and forms. The bit of colored light that got to be used at base of statue of Virgin in church or school is of a certain right decoration. To many the jewelledness of it fits.

It is not difficult to have lighting effects without familiar or definite forms, when the very form of the play is made through the timing, not primarily through the space.

The beautiful idea having been launched, there was no limit to the good, bad and indifferent influences it started into being. There was no care as to the true, the untrue or even the nonexistence of the spectral ray of itself alone.

Huge sums up into the hundreds of thousands were spent on colored light equipment in immense halls marked off as built for political meetings. One may have one's own ideas as to where much of the money expended finally lodged.

For those who have not seen the true spectral rays at their best, I would remind of a sampling in the most prized of the precious stones or even the echo of themselves by traffic light lending its ray glory across a rain-drenched street.

The penny-ante money-makers took not long to ring in a vague tinkle or two of colored light in conjunction with many a two by four clearing within a bouquet of eating tables in night clubs and other restaurants featuring dancing. The half-dozen instruments or so were canopied under a rag or two of a drape. Colored light spots were thrown on skin or vellum of drum or

skin and cold cream of "strip tease" dancer alike. I do not know that this enhanced any occult (?) meaning that said "strip tease" can, does, could, would or should convey.

These endeavors were lurid as "Ten Buckets of Blood," or "The Slop Boy's Revenge," or as inept as "The Torn Sheet," or "The Chambermaid's Spite." The stupid attempts were more irritating than beautifying.

Highly reflective curtains finally found their way, even as light reflecting backgrounds in skating rinks!

Thumping with the fist on early pipe organ keys brought forth true sounds. The dates of the above gropings show that not even at these late, even recent, dates, was there any idea of the jewel mistreated in the toads' heads. Thumping on your chest with your fist is no forerunner of a musical instrument.

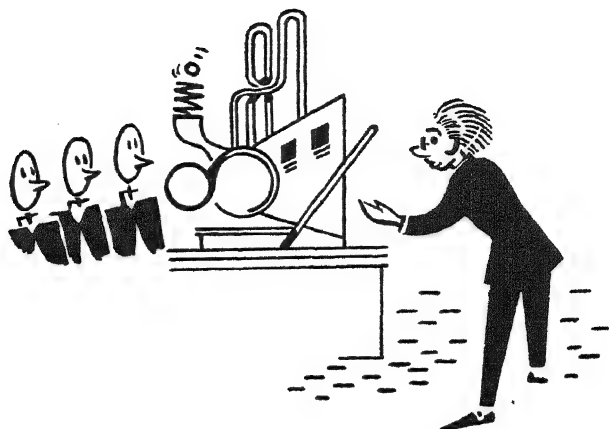
Some reverberations were constructive. Light-color playing had its undoubted influence on the work of painters of canvases. It was I who suggested in a convention of motion picture executives that they use tinting of their pictures as abstract suggestion.

It is well to mark carefully that which cheapens from that which upholds its work.

I cannot help but say to myself: "You started something, Mawruss." And no wonder. In its way, spectral color is the very root of seeing anything that may be perceived by the eyes. It has, through this labor, brought out much to the comprehension beyond the eyes.

## XIX

CHAPTER



### SOME WOULD-BE INVENTORS

TO ONE who has taken on a huge labor seriously and assiduously; carefully painstakingly, accurately, comprehensively and operably, the fly-by-night inventor who thinks of a quick result on a like idea takes on the look something of a jack-in-the-box. The real originator and creator releases through some word or way a latch in the ready brain of such a one. Up jumps a figure grotesque. He has been impelled to tread in where angels might hesitate without substance or license so to do. The result he shows is, of necessity, footless and pitiful. Such a one, so far as this subject goes, seems to be of an insect numerousness—veritable “grass roots” outcropping. To the present day, stragglers of the army still appear in this field and rise up, moreover, accompanied by names weighty.

*A Labor in Light Cannot Be Kept in Darkness*

A development which is of light can scarcely be kept in darkness.

There was no keeping experiment from making itself known. The subject stamped the public's fancy. The nibblers covered strangely the gamut of life. I, who have seen so many utterly useless, green, half-baked and inoperable notions thrown forth, think that a mention of these will cause others to consider well before embarking. For these do but raise a turgid dirty murkiness about the real invention and its careful and painstaking developer.

It should be one of the chief duties of a work of this sort to point out the futility of such wasted labor. It is more than sad. Further heartaches should, if possible, be prevented. Time and labor-taking mistakes could well have been avoided by guidance such as is here offered. Would-be entrants into a field painstakingly plowed by another, its furrows kept straight from error, its unproductive weeds of thought eliminated, its fruit brought to right and worth-while completion, should be guided, warned and possibly stimulated.

Many of these attempts at contrivances had some sort of drawings, sketches or actual paraphernalia to show. These frequently were half-toned, written up and announced from time to time in the daily news. They were never demonstrated. I have made a more or less haphazard collection of a great many of these and lodged them in the archives of a large historical society. But not even many scrapbooks could gather them all. Many drugs offered for an ailment is a proof that only one is the right cure. Any investigator who can find any possible use for going over these futile attempts can do so. They range from accessories to juke boxes to the amplifying tube used as part of something wherein they fitted not. These amplifying tubes for sound could be caused to trip switches, lighting colored bulbs. A world-wide known company fell for this. I cannot and indeed would not here give the mass or mess of attempts inoperable to the ends sought exhaustive mention.

As to light color play as accompaniment to phonograph or other automatic music, please see my patent No. 1,345,166 June 29, 1920.

### *A Historic Record*

From the point of view of a good librarian they do have a certain sort of value. I remember that one of these, helping me find a bit of testimony for a Court action I had brought, noted the increased tempo of surge of activity within the subject as a whole at a confirming dating. This pointed to the fact sought. The parent invention had indeed succeeded in breeding a motley and misshapen crew. I have been told that a whole new department or

division had to be created in the patent office, for passing on what was called "color music" equipment.

Such useless clutterings of the field logically bring to mind the patent attorney. I am sorry to say that he has been known to do his share in smudging the right invention's atmosphere or its specification's wording, and this deliberately. He frequently holds a retainer fee from large capital aggregations. And he is often considered one of the best in his calling. Such general abrogating of the ownership of a man's activity is thought provoking. Undoubtedly, he is one of their watch dogs. He may be worse. Somehow or other he does "hear his master's voice."

Some of these patent attorneys do think only of the big interests they serve while seemingly furthering the affairs of the individual patentee and probable litigant. The result often is a patent worthless due to the deliberate manner in which the claims are drawn. Patent claims may be drafted so glibly as to be barren and worthless. They will quickly be allowed by the office examiner because they are of no protection use.

An innocent looking phrase that has more harm in it than meets the eye can be interjected in the specification that can by itself alone pull out the props from the invention proper. The loss to the world may be great. It serves to discourage those whose lifetime on this globe may be needed for moving it towards still higher reaches of progress.

There are many tricks to this trade. The matter held in a patent application in this country is strangely found patented abroad during the time that action here is

pending. Foreign countries patent anything brought to them. They do not pass on merits. Such quick patenting for prior dating could not have eluded the alert attention of the office here. Later, perhaps years later on, this foreign patent is brought up in a U. S. Court to keep the legitimate creator of the invention out of his due.

I had one attorney say to me once: "You do not know how much I have lost by taking up cudgels for you in this Court." It is perhaps natural for them to feel so. The big money to be given out for such services is in the hands of big business. These are ruthless in trying to hold the world as belonging to them only. On what do they base such assumption?

And so their power perforce leads to the Courts. Expediency must have grown to have a part in their decisions. Prudence has grown to be too large a share of jurisprudence. Back of their very election to office is one grand "ring around a rosey." They would in the nature of things have a hard time being free agents.

A Judge once had the decency to write in his very decision and as to it, that "it was all wrong." He was enmeshed outside his control. He put down a sop to St. Peter.

Care should be taken also that records are not deliberately deleted from files. The librarian knows. The files of societies know. As far as the former can, he keeps watch over the irreplaceable references on his shelves. But important societies may easily be more lax as to recorded testimony in their care. Indeed their officers can and do order this and that thrown out that they would prefer not be confronted with later.

All this should not be in a country lauded for its greatness. Even little grains of wrong can finally slip it down from its high position, its vaunted prominence among other nations of the world.

There is a loss of many sorts for an invention correct to set straight. The hodgepodge, the untrue is pointed out fortunately through its successful practice. The variety and kind of the efforts outside this show the subject as having been invested with an extreme state of disorder.

But the right head and tail have been put to the vision that is operably right. Its wide and profitable use bears a convincing testimony.

I will touch on one more aspect in the general kaleidoscope for it can blanket many varieties of itself by the broad mention. In this way it can briefly place these where they belong.

### *The Picture and Design*

It is difficult for man to divest himself of the diagrammatic design and the pictorial. The magic lantern, the kaleidoscopic change through colored designs did their bit. Projections through lenses in or out of focus with doubled, elongated, squatted or other whimsical misshapings found, for one reason or another, a temporary vogue. The beauty of the spectral color added to these, gave them a fugitive attention. They may have had their uses. They could not stand for that which they were not.

It is true that incidentals of this and that sort may be interjected within Nourathar providing these do not cause the art to cease being itself. Magic lantern projections, all sharply lensed images, require dark-

ness for the mere seeing of them and light-color play uses darkness as a very small part of its scale only.

Fountain sprays restrict the light to the spray. A spectacle-like fireworks is also of design of the picture. The art aims for that still more universal, still subtler and with a reach not possible to the graphic portrayal.

### *Music and Form*

There is not the least doubt that music may suggest forms. Lovely canvases have been painted, phantasms in design brought into being by, let us say, a Chopin nocturne. But for a motion picture to make a succession of such phantasm is but a motion picture. It does not excuse posing for the fine art made through light-color expression in its passing by. I included form through shapes in an early experimental tryout of my own. It came about through my thinking that the lens was needed to produce the light color. The production of this color in and of itself alone for one reason or another so thoroughly eluded effort to make it palpably seen. I discarded the picture form. It interfered with the exigence of the timing. It was not the right end to the aim.

Successive pictures and light-color gamut, played as a means of expression, are incompatible on the same film strip. It is as though the picture strip would say to light-color expression: "Get off the field. You are too bright. The audience cannot see me." While the light play

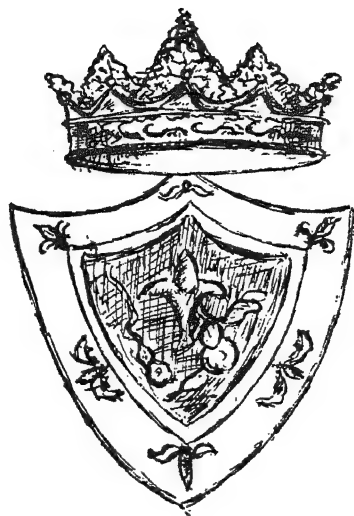
said: "I can use darkness but your rectangular brightness makes a splotch of my meaning." It disorganizes it. The very highest art can overcome much, and adorn itself while doing so. Light-color play cannot be absorbed in something else that denies it the right to a charm that is distinctly its own.

A scene there must be. The art is of space. But the affirmative in the result must not be negated or, of course, it ceases to be.

When the vaudeville artist with either a trained horse painted silver or doing his bit of any sort caused the high brightening of the light at his climatic exit, the picture he and his surroundings made to the eyes did not interfere with either the timing, the eye-encompassing scope, nor the psychological effect of this light play itself on the nervous system of the beholders. They clapped louder because of it. Light must not expunge a light that is competing. In this fragmentary case it did not. It was a legitimate part of the art being written about. It was very nearly its very earliest showing and practice.

And so we have touched on certain doings of record very briefly. They should be mentioned. To write of them in a manner that is extremely fragmentary is all that can be given to them here. The readers will gain through the hints. These together with many, many others that could be dilated on are part of the ragged and tattered fringe appearing around the carpet on which the structure to be described in further chapters of this book will be reared.





## XX CHAPTER

### A SAGA OF THE SWITCHBOARD

**S**HE was a Princess "of the blood," related to half the crowned heads of Europe. From her is the following story:

This daughter of a king lived in a château in France. Royal guests were expected. A dinner party was scheduled. The table was elaborately set for many courses. Silver flashed. Coat of arms emblazoned plate and napery alike. I do not know whether this insignia was carried out even on the electric bulbs or no! This was certainly within the last comparatively few years. The electric light was turned on, when instantly every single light source broke. Shattered glass spattered over the whole. "Tableau vivant!" Every article had to be removed and the table reset. Every woman knows how many hundreds of objects are needed

for such a collation. To handle them twice was no small labor.

The *powerhouse current* had not been mentored to the shorn lamb of a poor little bulb. The automatic control of the current to any or whatever use was not.

A small outlying district in France is likely to have still shown in recent times that which had existed in metropolitan centres in earlier days. This sample did do just this. For until the perfecting of the automatic control of powerhouse current to any use, a protecting expedient was necessary to prevent overheating the source of light.

From the very first experiments in showing light by electricity ways, some piece of equipment was an adjunct to these relegated to this purpose and connected with it. For by

untoward overheating the light source could have its life shortened, it could have its being deteriorated. Even its existence could be wrecked as the story above tells.

Indeed in earliest days a burner for making light, formed of a coat of platinum, was protected from *operating at too high a temperature by a thermostat.*

So from the earliest of these experiments the necessity prevailed. It made no difference as to this what the object was that was put to this use. From powdered charcoal on through carbon pencil, electric candle, carbon filament of high resistance, coils, rods or indeed for the higher temperatures permissible to coiled filament in an inert gas or any other electricity heated bit, a means was needed and used to offset the surge of powerhouse current as this came to them. When single lamps in a series burnt out they were automatically short circuited.

The necessity for this protection persisted till the year 1920 was on the road to being reached. It must have been around and about this time that the automatic control of the powerhouse current to any use made such concomitants unnecessary. *The factories that turned these out were about to be scrapped.*

The numerous little low power bulbs in auditoriums, sometimes as many as twelve hundred, called for switchboards to light them or put them out. Manifestly this had to be done for a collection of them, for many of them at the same time. What more natural than to include a commutation of the current as a part of the lighting of them. With this protection the life of the bulb was extended and protected.

### *Years of Experiment—Research*

After eleven years of research and laboring with various forms of experimental apparatus, I made my disclosure before the National Convention of Illuminating Engineers at the Bellevue-Stratford, Philadelphia, on September 12, 1916.

The members were the backbone of the electric industry; under "five-year plans" and tightly knit organizations they could inundate the mercantile world with that which they willed. *And they did.*

Switchboard commutation of current was rapidly getting obsolete. The automatic regulation of powerhouse current for its varied uses had come about. The factories for turning these boards out were on the road to getting scrapped. Here was a new use for them. And think of how many more of them they could use as a carrier for color, where to show the color was a difficulty if not an impossibility.

I have made plain that darkness and brightness were the right basis, for light-color playing used as a means of expression. It was not a thing of hitching a color to a note of the piano keyboard. As late as 1914 some of these engineers had attempted this with a quite natural and dismal failure. This is a proof in itself that the fine art of Nourathar had not been practiced prior to my inaugurating of the idea and the means.

Switchboards had been in existence since the very coming of the electric bulb. Never had there been any thought of their possessing anything but a utility, an "on and off" capacity.

I could enlarge on the high tonnage of cast iron and cement that

was then turned out and sold to encompass a light play by the minute and so very fragile electric bulb filament. I could enlarge on the immense prices asked for the equipments. The lump of exchange was leavened to an unbelievable degree. What price, big money!

No *dead* labor done on my part could have made so much live and flourish. No accident brought it about. The effort that operably created had been long and protracted. The toil had been hard and well directed. The spearhead pointed unerringly to the one individual that conceived, initiated, developed, patented and produced. She had laid the right finger on the operable unravelling. It took but a second to act on its seeing.

My task here is to furnish right knowledge for the future: it may then see and desire to further the potential within the single man, his brain, initiative.

All this has been made a part of Court record. The action had been brought by myself on my patented method claims. The Court in the face of every sort of testimony allowed me the origination.

Patent lore allows a claiming of the method irrespective of the means for accomplishing the something entirely new. And this though the apparatus that may be used for the purpose had been previously in existence for attaining ends different. A method then covers the *manner* of producing, regardless of the kinds or sorts of the instrumental means employed in that production. The U. S. Patent Office has allowed this author the method claims that go so far as to practically describe the fine art being written about. The

article of manufacture, in this subject, the light-color play instrument gives a definite, a very material groundwork on and through which the method of the art may be deployed. For this art is performed. It is played from moment to moment.

But the method allowed a crude and inefficient use of itself by apparatus previously in use for objectives entirely different. Herein came the rub.

The attempting to fit the provisions of my patented method claims into a unit made for accomplishing a different purpose brought about a botched result. Indeed it bade fair to destroy forever a new and worthwhile vision. Old equipment made with entirely other purposes in view could not properly fit in with this that was new.

To stop short of a maximum heating of the fragile filament protected and lengthened its life.

"Ah! ha!" said the men responsible for the equipment rapidly getting obsolete: "Why not tinker up these old switchboards to accomplish a purpose for which they were never intended. It is to be remembered that a switchboard was just a switch with protection to the filament to turn "on" and "off" the large number of little electric bulbs of the day. It was entirely an adjunct of power-house equipment.

Here was a new use to base on a quasi-darkness, on a brightness. Why not tinker switchboards up to a fine art purpose for which they were never intended. So said these men. *And they did tinker*, having between them a round-the-world control. It was "no trick" to flood the world's centres with switchboards patched up in makeshift fashion for purposes

alien to their original use. Additionally, as time went on, these had to be and were changed in *their every particular* to allow any expression through light by their means. What matter if a quantity of other factors be missing for properly making the point!

*When Is a Switchboard Not a Switchboard?*

When is a switchboard not a switchboard? A dialogue such as the following might convey a fact or two:

*Question:* How did these men seek to turn these old-time pieces of powerhouse equipment into a light-color play instrument?

*Answer:* Oh! They huffed and they puffed and they tinkered and they tinkered. The metamorphosings consistently followed the leadings shown progressively in my patents as these appeared.

*Question:* Were these altered much?

*Answer:* Finally in their every particular. They were turned into practically different objects.

*Question:* How did these little by little get by?

*Answer:* Largely through the breath-taking beauty of the light-color spread.

*Question:* Was there unmistakable conditions that made plain the origination they seized, that it had not previously been in practice?

*Answer:* There was not only one but many of these.

*Question:* Where did they get the ideas?

*Answer:* Their listeners were everywhere. When these got a glimmer

into one ear they thought they had heard in two. They held every door.

*Question:* Had they any excuses ready?

*Answer:* Oh! yes, they said a switchboard was like the early banging out on a musical organ of the individual notes by wielding the fist. Alas their attempt in 1914 of linking a note of the musical scale to a color entirely disproves this.

*Question:* Was the old-time switchboard added to in the attempt?

*Answer:* Numberless pieces and forms had to be added for the getting of any results, no matter how far from adequate. Even the quite necessary reflective background had not "popped the question."

*Question:* Can you enumerate all these?

*Answer:* It would take well-nigh a whole book for this purpose alone.

*Question:* Was this altered type of equipment satisfactory for the purpose?

*Answer:* It had certain forms of mechanical obstacles that no improvement of and on them could prevent a destructive curtailing of the art.

*Question:* The light-color producing units and a right foil for showing this if produced were essential also as adjuncts, that were never before so used?

*Answer:* They were.

As a matter of fact it is something of both "no can do" and "can no do" with such patched and scraped-up piles. The right player thereon or therethrough would have both unwillingness and inability to breed the right result.



## XXI CHAPTER

### THE FINE ART OF LIGHT-COLOR PLAYING

WHEN is a fine art? or conundrum-like, when is a fine art not a fine art? Answer the second question and you define the first. Fine art is no longer undefinable. There is still, however, so much of the ideal concept about it that before it you are still in the presence of something too great for the precise determination. Its limits of outline may in part still evade the precise fixing. Much in between that defines can now be definitely, indeed, mathematically, set down.

When, however, it is interactive natures of various factors belonging to the human body that influence the organ of play; when these two sets of exertings, of the instrument used, of the man using, are also interactively deployed and employed, then indeed there is much on which definition of the fine art can solidly rest.

These may be but small, indeed a very small part of the art vision as a whole; but they are not only not negligible but definitely assertive.

#### *The Place of These in This Book*

I have given historical detail elsewhere. Our task here is to furnish

a solidity of knowledge for the future to work on. It is important that later years see and become desirous of furthering this expression of beauty. The author can speak with authority. She holds the patent claims not only on the method, on the means, but also on a system, an article of manufacture and indeed had she gone far enough, claims on a composition of matter might have filled out the whole. It is necessary to delve back to bring a right understanding of something of that which has transpired.

We have already mentioned, and will mention more fully later, some definite measurings that hitch expression in Nourathar to standard of measure of and within the human being's body. This puts something very real into the ideal of this fine art means of expression.

But it took experiment, it took practice to set its seal of approval on the conception steps. These must be touched on lightly.

#### *Audition in a Vaudeville Emporium*

I managed to get an audition in one of the largest vaudeville houses in the country. This was early in

my experimentations. It was but one in a country-wide chain of such houses. One of the owners was present. There was also the local manager, a representative of the electric industry, of course, and a newspaper man.

I have written of the difficulties attendant on getting colored light to show indirectly. This was regardless of the vastly enlarged hurdle when creating an extended continuity of such appearance wanted.

### *White Light Climax*

But the white of the light could accent the climatic ending by brightness to the eyes, and so a vivifying of feeling. This they delayed not in doing. The success of this scrap of the whole was instantaneous. To bring up the lighting of the total interior just when the applause was expected or wanted *caused the audience to clap louder and harder*. Its use became on the instant practically universal. With the ending of overture, with classical music, or an exit of a trained horse painted in silver, the whole field of vaudeville acts took advantage. Conductor, actor or trainer, as he made his grand climax, and bowed his exit, arranged for this lighting. A "cue sheet" in the form of a guiding slip for the electrician was hung on the switchboard (sic) to be followed.

And this guiding, timing "cue" may be considered the very embryo of a light score. I have collected quite a number of them. These are now placed in the archives of a well-known institute of reference.

### *When Is the Fine Art?*

It is at this embryonic point that the public incubation of the fine art

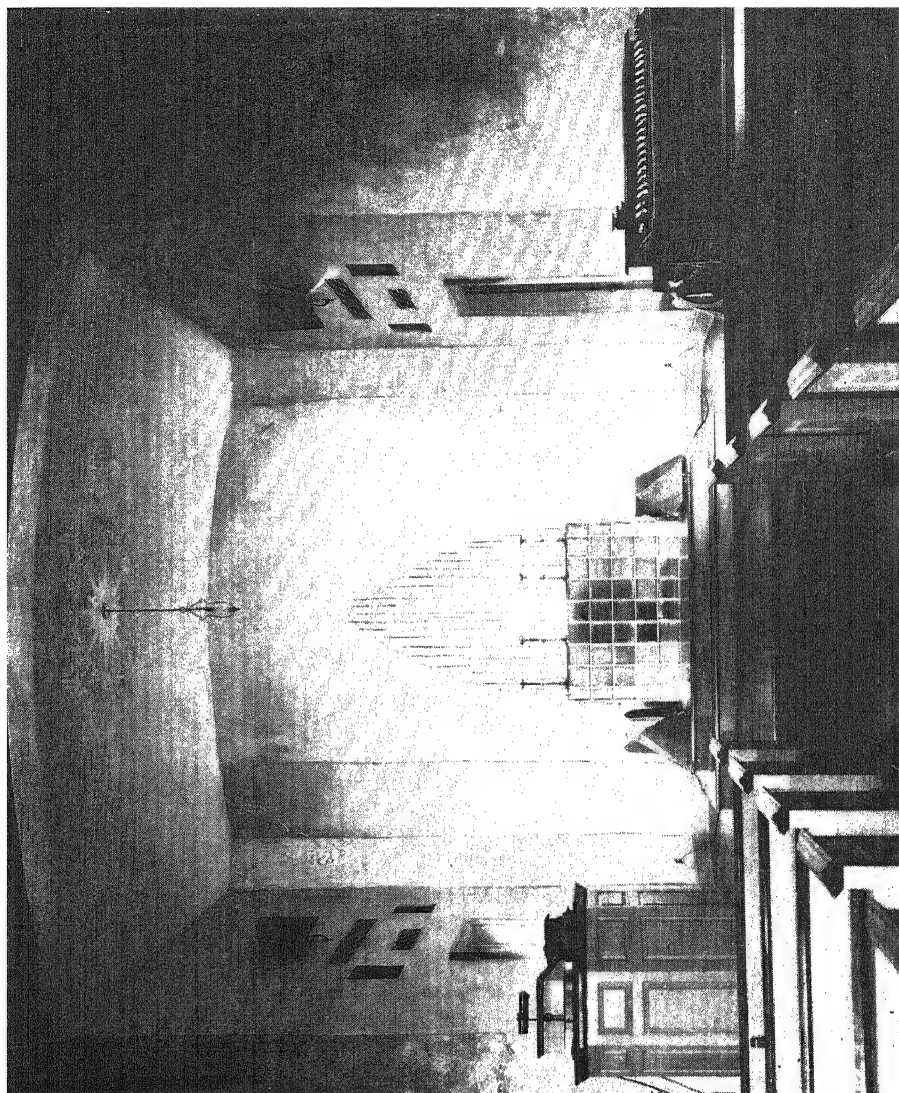
of light-color playing used as a means of human expression or Nourathar showed. And it was a demonstration of mine that brought it about.

1. The light was caused to change at a given moment or moments. It was timed to a particular nicety.
2. It was used not to see by but to feel through.
3. It was specifically aimed for affecting response.
4. The response aimed for was of a particular character.
5. The lighting surrounded the wide range of the seeing field of vision. It was a catering for the human emotional response. It was not used for the purpose of seeing. It was but for the fugitive moment of time, needed by the very short definite period of the expression.
6. It gained the response. This is witnessed to by an enthusiastic clapping of hands. It was attained by the compelling mesmerism of art.
7. The spread of the clapping proved a corroboration by many simultaneous witnesses.
8. Last and not least there was a notation for indicating the kind, the moments of the starting and ending of this light nuance. It was used as a means of expression solely.
9. The moment was taken at its mesmeric best.

This was not done till after my demonstration, made as part fruit of my many years of labor looking to the end. It was light play made to feel through. It was an art, not a utility. And the dating of its becoming was corroborative of the



MARY ELIZABETH HALLOCK (LATER MRS. FRANK LINDSAY GREENEWALT), AT THE AGE OF NINE (9) YEARS TAKEN IN BEYROUT, SYRIA, WHERE HER EARLY LIFE WAS SPENT. FOR OTHER PHOTOS SEE THE HISTORICAL SOCIETY OF PENNSYLVANIA. SHE IS A SCION OF THE OLD NEW ENGLAND FAMILY OF THAT NAME DATING IN THE U. S. A. FROM PETER HALLOCK WHO LANDED AT HALLOCK'S NECK, CONN., IN 1636. SEE COMPENDIUM OF AMERICAN GENEALOGY



A CHAPEL WITH SILVERED WALLS AND DOME. THE REREDOS IS OF ARTIFICIAL GLASS RODS. THE ALTAR IS FASHIONED OF GLASS BLOCKS. THE MARY HALLOCK GREENEWALT LIGHT PLAY CONSOLE IS AT THE RIGHT OF THE CHAPEL



claims, both of the invention and its inventor.

This germ within the whole of a fine art reminds one of the protoplasmic cell in the field of life. It persists in the developed man. This minute sample of light play has the earmarks of the attributes that differentiate the art as a whole. It was an introducing of the method—to hell with the means. A well-developed articulated being is probably never thoroughly known till his incipient beginnings are segregated and analyzed. It is so also with a new apparition in the worlds of the fine arts.

We'll give your psychologies a grand boost. It is not for seeing that we bring up the white brightening of the light at this particular moment. It is for feeling. This the practice said. And the proof of the pudding was there. The method was there. It had been shown them. The audience "ate it up" and doubled the applause. The crumb held a pointing to the whole, no matter how little. The world is suggested within the dewdrop.

The traces of the human *body* are there. Even in this fragment. The timing, the all encompassing of the eye, the mesmerism, the resultant feeling, the proofs of the sentiency are elements out of so many, many others that expression of and by the human of the being was there. And that this was attained through the phenomenon of light play.

It denotes the potential held in this medium as a means of timed expression. So much was accomplished through *so small a fragment of it*. It is like an enormously powerful creature that can, but by the

lash of the tip end of its tail, come nigh to swinging a big result.

Whether of soul or art, growth is the chief business of life. The fruiting seed denoted that the giant tree had been caused to start its promotion.

### *Light-Color Continuity*

The above sample is one carried out by the sum total of the light, its white. Additionally to this there was all the color of the world there for the use.

Color, by the same early performance of mine, was a chief actor in the light drama. I had succeeded in bringing about at will, after much effort the visibility to the eyes of the light-color and in a *continuity* of spread. It was also known and made plain that this was not accomplished by wishful thinking. That it had taken much trying of this and that. Indeed it had taken a whole series of experiments. An entire list of new pieces of apparatus was utilized to bring it about, *including a reflecting surface*.

Once launched, no time was lost in the building of an immense motion picture house within which to present so splendid a novelty. This auditorium was purposely erected in part for that end. It took some six years to bring this about. Other houses followed rapidly till some five thousand of them had been built in this country alone. This was done at a cost of a million dollars or more each. Exchange activities were bred of unbelievable range. A leavening power of tremendous import had been added to the world. The splendor of the essence root of all color in a wide heretofore unheard-of

spread had done its best as a means of lifting life a notch further. And the people came to see. They continued to be attracted. They showed their pleasure.

### *Crudeness of the Color*

An early use of light color was restricted to three in "the trade." Three-color lighting it was called. No mixing of these for variety throughout the house was possible. The bulbs, each of comparatively low power, had their particular field of influence, separate, even widely separate, one from the other. In such samples is to be found the seizing on a field not primarily of their own initiating.

It rends my heart to write about all this. There is a special fissure in it, "tear and tear (the saline drop)" when I speak of scale. To appropriate an improvement on an electric iron or other kitchen utensil is one thing. To attempt the purloining of a fine art is "a horse of a different color." For long there was no darkness and brightness scaling for itself or for this color or that at all.

Even when the computations which I had made for such a scale were appropriated, in 1920, its range of play was blocked by movement around a shaft. This was of such small diameter that not even the fine muscle control of the hand could produce the gradation there for the making.

There was no discreet tempering of color. It was of a wholesaleness to match the lumped-up trades that profitted. The scale was so negatived in its possibility that it became rather like an alphabet without its letters. There is too much continuity to x, y, z. I do not know how better

to suggest the travesty. There was no gradualness, no approach. It was a wholly trumped-up means incapable even of an ineffective handling. The errors made proved that these early exploiters were not the originators.

### *But It Had the Glory of the Color Ray To Support It*

Only the crude change back of the orchestra—but the glory of the widespread suffusion, the *climaxing* this with the glory of the spectral ray, the full potential of the white of the light packed the houses. Four changes not more there were to match the subtle, the infinite variety held in human feeling!!! as portrayed by the music.

The conductor buzzed. The backstage electrician pulled a switch. The white-light climax was so valuable that the conductor of a motion-picture house orchestra told me that, should an overture end sedately, a harmonist was engaged to alter the composition's ending into a brilliant one that the white-light climax could accompany it. But it was a makeshift robot that had been yanked into pretence of the motion of life.

I presume "buy" and "sell" are an ultimate testimony. I will offer proof here of this by quoting what the official of one company told me regarding the production and distribution of light-color play apparatus even so burlesqued when it finally, in 1921, appeared in a fullness.

"The demand needs so great an output," he said, "no one company can manage it all. This has had to be apportioned. The making of this piece was delegated to one and the making of that to another."

## XXII

CHAPTER



### THE ART NOW IN PRACTICE

THERE are many witnesses to the coming of the art and my creating part in it. These are old enough and intelligent enough to know well what went before and that which has appeared after. Their perceptions awakened to the facts are neither newly born nor adolescent. Jealousy does not hide in them their sense for justice. Those whose words reach me do but betoken the numberless ones who are also tacitly aware.

"I thought of you when the light play was started. I spoke to my husband of it," said one. This was in an immense metropolitan emporium. I have been told, I don't know how truly, that its equipment for light-color playing in its cost alone mounts into the hundred thousands. "I think of you," said another, "when the light play is done." This was as to showings in a New Eng-

land town, a sort of summer resort not too large. Still another who had travelled away from a rural spot expressed herself to me as utterly, wordlessly flabbergasted with delight at the extreme, well-nigh miraculous beauty of the ray-color playing on draperies held high, very high it seems, on sticks in a dancer's hands. This was within the last year or two and: "Yes, it followed the music," she told me. *That was the wonder in chief.*

A well-known female evangelist dressed her revivalist seances in light of a David's coat of many colors. A great symphonic conductor, out of Berlin, said to me: "Be quick about it." Alas! "I used it in one of my concerts and the audience rose up at me." I sighed. I had heard his consummate conducting and knew what his leading of the light, as he

conducted the music, could well have done.

It seems now that the future will remember and be grateful. To this end, but only in part, I dedicate this writing.

Strange that one should care, and, unaccountably, that those who come after us revere, and cherish and be grateful to our memories. On that lovely harking back, a great nation has built its religion. Ancestry is much to it.

It has some reason back of it, of course. Is this backward caring part of the mysteries of the conscience within and at the same time the stars without? These two, you will remember, stumped the superb thinking capacities of perhaps the greatest of the world's formal philosophers. He was a German.

The artist well knows that there is something, let us say, finer than radio-activity. That it has somehow its place in the general scientific unravelling must be. This one of wishing to leave an influence for memory behind us, when we, in that body which did it, are not there to see, must be of the conscience and the stars also, of course. It joins us all together as these do also.

"We have your light play, and a console too, in the large concert hall of our town," one said. "It was very beautiful as they did it *in the beginning*." With the hall electrician "on the job" it must have been difficult to further an initiative well started, especially as an accompaniment to the best and subtlest music. "It is best done there," another tells me as to another place where the art has lodged.

The very possibility of applying critical acumen is a proof of the pres-

ence. "It was best in the beginning." "It is done best there." And the testimony of an entire audience: "It rose up at me."

A notice sent by me to publications in important centres of the world in 1912 bore its fruit. That is a strong point to be remembered as to the origination, also that, in spite of it, and the eye-opening hint it gave others, the operable means for the practice of the conception and its method was made and patented by me.

My files contain letters written to me many years ago by a Japanese engineer who mentioned admiration of my achievement. He was instantly alert and interested—"on the jump."

I visited Japan recently. A Domei representative called. Could he bring a fellow countryman that knew much of the art to me? That was probably the one. He came not. He had, without doubt, abrogated to himself the pioneering in the field. The temptation is great. Who knows? The real author may not come to the fore. The pretender would then be the winner.

A man, recently chased out of Hungary as refugee, posed as originator of that which he had not done. "You must have been ten years old when you did what you say," I wrote him, and recorded the letter in other places. Dates have a way of puncturing balloons, of deflating untrue pretensions. Other facts are likely to label them also. One of the organizations, he mentioned as quasi-sponsoring him, wrote me in answer: "They had paid no attention. That what he showed seemed not to carry out his claims." Why multiply?

I have not been recently to see

what is being done. I spare my heart all the aches possible. "It is best carried out there." "It was very beautiful in the beginning." Dissection of the embryonic starting is recognition that the entity is there.

Were I an assiduous patron of houses of entertainment, I daresay I would be more pleased here than there and now than then. I daresay I would find the art had come and progressed to the point where I could qualify. It is not ideally shown but there is the passable in it.

The passable indeed begins with the spread in an unbroken continuity of a showing so exquisite. And this whether anything further is done with it or no. I claim my influence there. Just the approach points to the right of way.

Such extension of an unbroken continuity, made through ray color over a broad span in space in a oneness, had back of it my recognition of a fact of import. It is, moreover, a physiological one. It is that one, not small indeed, of the manner of the placing of the eyes in the head. It is a realizing that the wide range of the seeing field of vision is a door wide, through all of which the intent must enter. The being entire was to be affected. And in this way it was.

Various developments for the practice of the art are in use. The processes of thought that brought these about show the forward movement, the progressing proceeding that follows plainly the course taken by my patents as these were filed. Equipment is still further along in this place than in that. The clinching proofs are plainly laid bare.

"Man is descended from animals

hairy and he still shows the traces on his body of the fact." So said Darwin. The steps passed over are likely to remain, at least as witnesses.

I review my thoughts at a very beautiful, a very choice orchestral concert of modern music at its best. I conned over in my mind the handling of the light-color play instrument as I matched, in my mind, the tone changings of the music by ray-hue undertones, so subtly changing, so skilfully timed. Quite manifestly such superfineness is not done in the present practice of the art. For it would take my console at its finest, a full complement of light choirs, and the master hand to accomplish the feat.

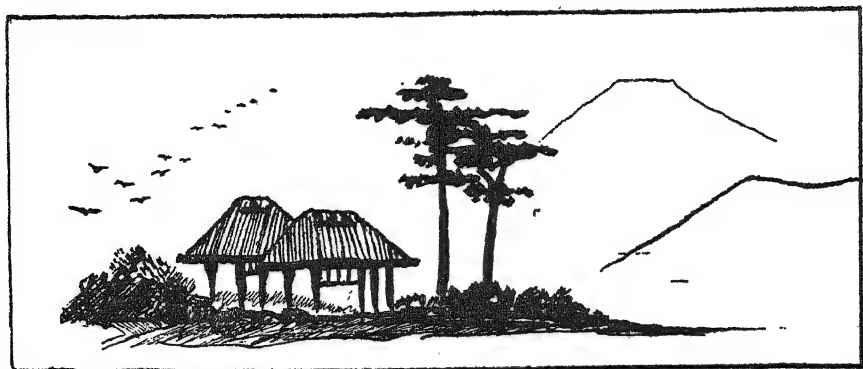
Of this I am quite sure. The full extent of the fine art's possibilities has not yet been touched.

The statements of those who have consciously and unconsciously borne witness to its present state of practice are supported by certain instrumental fashionings in wood and iron and such like.

But just as the few hairs on a man's chest announce the fur that once covered his ancestor's body, so does the apparatus now being used, for making light-color playing, shout the unseemly attempt and its insufficient knowledge. It has on it the stamp, also, of the too smart and conscienceless business ways. It is unfortunate for Nourathar.

Yes. The art is now in practice—dressed in rags and tatters and flaunts something also of the jester's cap and bells.

A description of the Sarabet, the instrument for the practice of the art, follows.



## XXIII

CHAPTER

## THE LIGHT PLAY CONSOLE ARRIVES

THE patent examiner, so these men are called who pass on inventive claims, said that no such form as light-play console could be cited as prior to that shown in my application. The drawing was of a table-like control centre for playing on and through light. And this was as a means of aesthetic and emotional expression.

It is the executant instrumentalist, and I was such a one, as would know that such a type of playing centre would be necessary if not obligatory. For the factors to be handled were many and interactive. Office of both hands and feet were required as well as close attention from moment to moment. An instrument of the *console type*, at which the artist playing on and through the same could sit, was in itself a certain proof of the originality of the method back of the means.

My experimentations did not start with this. At the beginning the objective did not seem as difficult and

complex in the attainment as it turned out to be. If one may describe it so, the nervous system of the fine art itself was far from simple. It needed a body compact, comfortable and at the same time allowing all the necessities for the playing. For the producing through it was not a simple or easy matter.

I developed the light-color play, console type of control centre. I manufactured, I don't know how the strength was given me, some "baker's dozen" of this type of instrument. The effort was tremendous. It was life taking. The sacrifice was immense. These had successful showings. One had skipped through a network of assorted intrigue and won the International Jury gold medal award from the Sesqui-Centennial Exposition. In the listings in their historical notings "Abou ben Adhem's" name led not, was not on the list. The compiler and editor said to me in excuse: "He didn't believe in it." He died not long after.

Perhaps he was played so well because not at his best.

The console shape was copied. The wholesale control was more or less taken care of in this apparatus form, also, but where? oh, where? was the detail handling for the detail of scale? for color hue, shade, tint? The very detail, on which color shade and color tint depended, was missing. Lo, and behold! These consoles (?) were not much more than the switchboard in table form. Four of these were made and installed by large electric companies. Then the war came.

By that time they had included within their circular switchboard plates the figures for scale I had arrived at. The *small* indirect control on their consoles still controlled. These made production of the wide range of color shade, color tint on or through them impossible. They could jam on the wholesale quantity—not more than nothing else.

### *Scale Play Missing*

As to the graduations in black and white, there were none such. These that are so miraculous as to have caused Oliver Wendell Holmes to say (it was the delicate shadings shown in but a Japanese print, that brought it forth): "He would wish to fade out of life even as the point made the vanishing lines on these etchings fade out."

### *Definite Measure for Color Shade*

Swallowed up in incompetence was the incomparable start for arriving even at a definite measure for color shade, color tint. Not even perceived was the way started for putting orderliness in the chaos of color.

It was bulbs lit versus the scale of least visible increments.

It was vat of any color—vat of any color. A male singer being sensitive, as one learns to expect that gender to be, thought he would like being surrounded with a color atmosphere of "mauve" in one of his arias. He was told by the filter makers that they would have to mix a whole vat full to get his sheet and he must pay for all.

It was zipp!! boom ha!—the movie only allowed seven seconds or minutes for the light-color accompanying. Humanity cries out in outraged pain.

But such as these concoctions were, they did infringe my not only method claims. The method of the origination has been upheld even by the Courts.

### *The Individual Knows His Ownership*

A little story at the expense of the men. Just by way of diversion.

It was in a town in the middle west where I was scheduled to play a piano recital before the local women's music club. I found myself on the preceding evening in the company of two of its high officials and their respective husbands. The men seemed quiet, alert and watchful, opposite the high good humor and cleverness of their wives. Something was said which brought out of one of them the laughing remark: "We know when the children are ours." The other one chuckled gaily. I, not having quite heard, she repeated for my benefit: "She says, 'We know when the children are ours.'" I, too, tumbled amused at the unbelievable quip made under such good chaperonage.

Yes. We women know when the children are ours. And as to the growth of this offspring my attorney said to the Court at the adjudication of patents hearing: "She is still leading them." That is a worthy crown to evidence capping so extensive a mountain of proofs.

### *The Wide Use*

One point comes out stark and clear. The subject knocks at many doors of public gathering. Its proven value, its universal appeal makes it of interest to builders and buildings alike. Expression through the fine art of light-color playing opens the floodgates of feeling in the perceiver. The perceiver multiplied covers the census of humanity as a whole.

### *Danger of Capital Organizations*

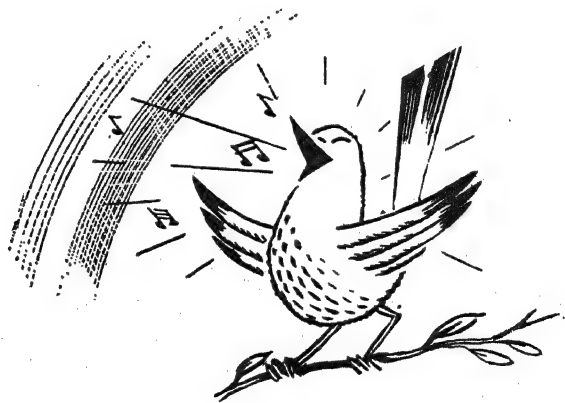
I know that from fungi, lichen or algae to mastodon—life is a matter of "dog eat dog." Also that "fleas have still other fleas on their backs

to bite them." An artificial flood of lack as to what is due, what is right and what is wrong should not be allowed to grow. Pushed into such mammoth proportions, it is a danger that can shove all humanity into a deep of their own contriving. This for one reason and another is a serious danger. It can, in its own and hidden way, end by laying the seeds of disintegration to humanity as a whole.

### *The Surroundings Sketched*

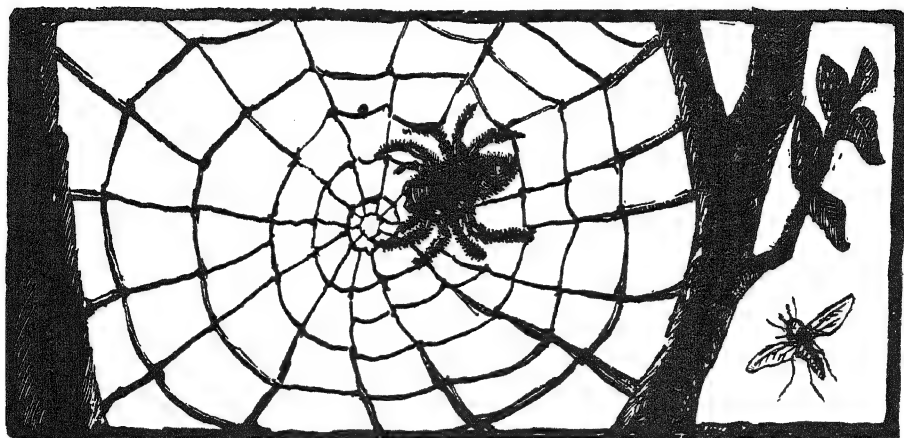
We have given something of the surrounding atmosphere to this subject as a whole, as it now exists. Wherein does it fail? How does the art now in practice fall short of what it should be?

What is its correct description? And what should be known regarding the manufacture of the instrumental means? This phase of the subject, which in itself alone is so large, follows.





## PART TWO *The Instrument of Play*



### I

#### CHAPTER

#### WOVEN ALL

THE organ of play is not, in its character, disjunctive of the artist performing it. The chain that starts within the feelings of the executant leads through the nature of the instrumental means that he employs to attain the ends. The needs of the one condition the other. It is not enough to analyze the fine thread spun by a spider; to limn, to delineate the cobweb. The make-up of the creature itself is part of the findings and the results. The factors of both are interwoven. One hinges on the other in a continuity unbroken.

I have heard another woman play a technically difficult study by the incomparable Chopin which I had by unbelievably severe practice mastered. It taxed the digital capacities for speed and muscular co-ordination to the limit. The notes were so closely and continuously successive as to have to be played, by metronome paced, at the rate of six to eight

hundred of them per minute. The golf stroke, and all the time in the world to put on it, may well take account. So interwoven is body centre, through periphery to beyond, in fine art production, that without having seen her hands close by, I knew by the indefinable just how much the linear lengths of her fingers exceeded mine.

Even but the tips of the digits may transmit the subtlest kind of summing up of the state of the mind and body and further. An electrical stimulus from the other side of the globe, or mayhap another planet, is not more sure of a certain course and a certain result.

I prefer no typewriter. Lack of the usual robustness, in the forming of the letters and tracings of the words by pen, may announce a weakening in the literary content. My caligraphy could be a guide to my physician if I had one. Sickly alpha-

bet lines may well denote the lack in mental verve.

The pen is but a tool, though a very nice one indeed. Consider how much an intricate instrument on which performance of expression, moment after moment is made, must take into account. Of necessity it must be so ordered as to be a servile opposite to the factors entailed in the man himself. Or, at least as far as it is possible so to make it.

The piano, for example, though entirely different from the instrument I am about to describe, has over some generations been brought to be as obedient and sensitive in its response to the subtleties of human touch as it is possible to make it. It stands at a high state for the purpose for which it was designed. I have heard so consummate an artist as Mr. Paderewski play in public concert when I realized that through weariness, lack of the usual sleep, perhaps just a cake of chocolate eaten the night before, or what not, grains of sand as it were, were sensed within his body's cogs and wheels. The slightness was one that could be felt, not enough to be measured. It represented the perfection of the *carry through* in the medium of play.

The apparatus created for dealing out, at will, *the quantas of light and its color for purposes of expression* must, in its own and *entirely different way*, be just as flexible as to the needs mentioned as violin or cello, and further. It caters, to be sure, through muscular actions entirely of their kind alone. It must in its own way present such elements or causes as can make it obedient to these; entirely different as these are from any other sets of muscular co-ordinations.

The circuit is *one* from brain cell

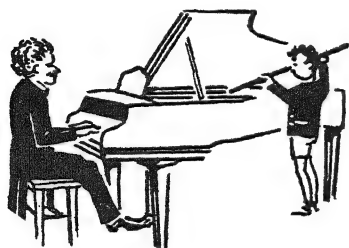
through muscle, pushing by such intermediaries as composition compound, metal and other all too unwieldy materials to the inner perception, caused to respond in this art by play of light rays and their color. These come across or indeed into the *eyes* of those watching. It is through the sense of seeing that the effect on the perceivers is made, no matter what other permeation of them there may be through the tissues of the body itself. The effects are of the beauties created and the feeling these beauties can be made to suggest.

An automobile engine may "skip" or "backfire" occasionally and still reach its objective. There can be no gap in the sequences through the tool for fine art expression. The continuity cannot brook interruption. A break is disastrous. The apparatus itself must not allow of any irrevocable such.

In the practice of the art the dovetailings within the muscular body, which are used for the making of the expression, must find suitable jointure in the fittings of the device parts. Through such and only, may the higher body reach up, up, into the still higher. Via the feelings, the brain, the technique, the capacity of the one being creating for the other.

The man sits one with the horse. From the least of the instrumental parts to the highest in the artist, the road engaged in is one consecutive and unblocked one. That instrument which in itself shows a lack of sufficient knowledge in its making—that instrument so conceived as to force a break in the continuity anywhere makes difficult if not impossible the sought result. And there are many, many other requisites not so quickly to be hinted at.

The story is told of Mr Paderewski that on a concert night, the only piano available was possessed of a key which stuck. It was but one key which did not by itself rebound after being pressed down in play. All artists are game. A boy was stationed back of the piano. A stick in his hand raised the key willy-nilly. The piano had arthritis in one of its many joints. A man can conduct his affairs in spite of a rheumatic disadvantage. Not so the article for fine art playing. These must be whole in their entirety.



Marvel of marvels the apparatus, in the above case a piano, is the same whether it is operated by a little child practicing five-finger exercises or a great artist drawing crowds to the tune of many thousand dollars to hear him. Indeed one whose ears are wise can tell walking by, out of sight on the street, by even the five-finger exercises, how much temperament the child has and indeed whether there is an onion smell in the kitchen or no!

And in the fine art expression through mechanistic means made over time spans of moment to moment the muscular involvement extends through the body entire. A good performer settles himself conclusively down to the hips on his bench, though but the members do

the playing. There must be a meeting flexibility in the organ of play as a whole.

The color map is long and large. Playing with its root essence, the light which initiates it *may leave no nuance unaccounted for*. The Sarabets, so I have named the console of play, through which Nourathar is played, must therefore even numerically have a detail capacity not even approached by any other instrument. The eye is fundamentally different from the ear. The mechanism catering to it must make provision for producing at will any shade, any tint. Take a second and look around you as you read. What you will see through dyes in objects is far from the fineness, the extent shown in spectral color of light ray. The manner for the laying these out carries its own many exigencies, necessities.

Many are the possible interactions within the human body itself. Behind every physical expression there lies the deep *feeling* impulse. These are wel-nigh infinite. *The variety of shade and tint has number to match them all*. The manner of laying these out carries its parts.

Measurable and immeasurable the article of practice must be capable of suggesting in *comparable meeting*—yea, down to “the onion smell in the kitchen.”

It is lucky for us that so much in fine art must be subconsciously activated. The conscious mind could not otherwise brook it. Perhaps this is the special reason why *all the ways* entailed can lead to the *one end* in the activating of the parts as practice of the art.

### *Different from Any Other*

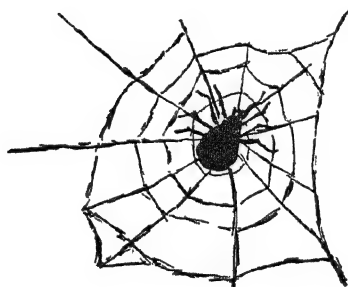
The picture we are about to make of this particular interweaving, of this particular instrument of play, is different from any other. No other means can properly fit. Light and its color forms are colossally individual in every way and distinct. Playing through these demands the setting in motion sets of muscular co-ordination used in their manner in no other art. The instrument for the practice of the art is entirely novel and new. The color entities have shades and tints extended in great subtlety long drawn out. They cannot be percussed. They must be smoothly moved over. And this even though the eye be not as fine in its detail perceptions as it is.

This is obvious within the numerous points that must additionally be kept in view. The eye is too fine to allow of its being teased. The progressions made are even. They do

not beat on the nerves. Their effects are liquid, flowing. This also differentiates it from the arts created through hearing.

The apparatus, unused, inert, till caused to speak, which we are about to describe, holds surprises to the world of affairs. It contains the unexpected value even for the web of manufacture and trade. It is entitled to a looking at. Both the outward showing, as well as the expression unravellments through the within of it, are a vision fresh. They allow new soaring flights of reapplied imagination. They bring into being a worth-while newness.

The experience of making an examination of these is worth a short journey over printed pages conducted. It is exciting. It holds mental adventure. And this venturing upon has within it a fresh living. Come. Don't tarry. Read.



*The below are words with their definitions coined by the author. They have been awarded a prize by a well-known international dictionary.*

## THE FINE ART OF LIGHT-COLOR PLAY

### NOURATHAR

Arabic roots, "nour," light; "athar," essence of.

The fine art of light-color, played as a means of human expression.

The practice of this art causes illumination factors to conform to such actively measurable bodily functions as the orderliness of the recurrent timing, suggested by the pulse and respiration, among other interactive norms within the man, which at this dating are measured or immeasurable.

The interaction of fluxing light intensities, light-color quantities, qualities, extensions: those combined dynamics of the "more," the "less" point from moment to moment to changing states and feelings, which, in this fine art, are cause of the light harmonies expressed.

An illustration of this art is seen in the suffusion by colored light of the orchestra as it begins playing the overture, whilst backed by a reflecting neutral silver-grey background. The art is in use in practically every large theatre in the world.

The influences of light intensity changes on man, brought about in his long development by the movement of the earth about the sun, bred the *common understanding* which this fine art renders artificially specific, between man and man. In other words, the art of light play is artificial as the orchestra is artificial, though sounds are made by nature.

### SARABET

The instrument on which the art of NOURATHAR is played: It consists of a console table-like form of control centre from which the lamp units and their dynamic potentials are played upon. These may be of necessity distributed throughout the entire space, featured at a distance from their control point and each other.

### LIGHT-SCORE

The written or printed notation, by which any sequence of light-color flux or play can be registered and its timing marked for duplication or replaying on the instrument constructed for that purpose.

# "The Arts are all the Sciences"

## II

### CHAPTER

## THE BROAD SCOPE

THERE is the making of the instrument. There is the playing on it. The *composing of conceptions* made through the medium of colored light is still another concern of this art as a whole. The noting of these down is still another. All are activities separate and distinct. The performer and composer need not be expert as to the making of the instrument. The maker is not necessarily performer or composer. That is as trite as that toothless mouth is not the dentist.

There is the comforting angle. This is that all four: maker, performer, composer, and printer need also not bother themselves with the learning and knowledge that was required before the vision comprising all these phases could be brought into being. This excepts the fact that broader information as to the whole helps the general intelligence as to the result needed in any or all of them.

The very fate of the art of playing light as a means of human expression hangs on a faithful record of all that which belongs to it. Perforce, in these pages must go details as to manufacture, the practice through the manufactured unit, the means for recording the conceptions

arrived at, as well as matters pertaining to the art itself. It is a large order. Fortunately, very fortunately, the facts are but a description of that which has been done. In large measure the tasks are completed. The chore here is to make the faithful record, the clear putting down of much that went to create the whole. Its future depends on clarity as to the factors entailed, distinctness as to these. And this is so even though the conceiving of creations in Nourathar and their playing be not involved in manufacturing the Sarabet, or the printing of the conceptions made through and arrived by it.

The description of the instrument precedes setting down points as to its practice. The processes that went into its making must be perpetuated if the whole of the art is to continue in existence and be of durable development.

The length or sweep of a compendium, dealing with these matters, requires a touching on all the phases. The fruitful lasting demands this. Moreover, it is not entirely true that performer or composer is not an interested party in items pertaining to the vehicle itself. Imperfections of one sort and another in the

particular unit of the many same must be recognized. A falling below standards could seriously hamper the result. The light player will need to know, for example, whether his *color filtering media are up to specifications or no*. A violinist might as well not make sure the state of pitch in his string. In such matters, being wise as to the one item goes hand in hand with being knowing as to the others. All fields pertaining to the one implement join here and there.

It must not be supposed that the perfected vision to be laid out was a matter of sudden whim. Nor that it was quickly realized. The labor was long and hard. It would be a tragic error to allow that which has been done to get lost. The doing over may not again occur. Some Sarabet instruments are in existence. Needed figures and formulae are in the hands of various large aggregations of capital. These are, of necessity, corporations dissimilar one from the other in their output. Large institutions of reference have in their possession still other data.

So much is well. This writing will knit together. I urge that a conscious interest be applied. Much research, much effort and learning have been needed. The result should be perpetuated. With what has gone before, this should be easy.

A great deal is read these days as to mishaps falling on aviation crews. Their plights are not worse than those assailing the originator, the inventor whose fruitful results should not be allowed to be forfeited. For there is no joke in getting lost on the cold, bleak hills of logic. Floundering into a very jungle of experimental errors is not a jolly pastime. Floating on the wide sea of a consummation that

eludes is not a gay lark. To make a new compass by which others may steer is of heroic effort. Over and over again the road leading to the right, the operable solution is lost—and moreover with but the slimmest margin as to likelihood of ever getting back on to it again. The result is worth a certain deifying through the supporting interest. The instrument for playing this art is a tangible result. It is in a way a physical testimony as to the effort and the kind of effort that went into the manifestation by means of which the art itself is produced. It is well for the attention to be drawn to the variety in scientific research which had to be tackled and solved before the right outcome was attained. The livingness of light is carried by its own very definite, very tangible body. The fine art carried like a jewel in the texture of light could not be blown into being. It could not be waived away as inconsequential air.

Indeed, like that well-known nation of olden times familiar to students of Latin, the instrument, through which light and its color may be played as a means of human expression, can be said as lying under at least three realms all-important to it. One of these is that ruled over by physics and chemistry. Another by electricity. The third is of mechanics, of course. These are only those directly concerned in the article of play. They have been called in. Their service is over. The manufacturer need but take the results arrived at.

Many other fields of scientific learning contributed their quota to the whole. "*The arts are all the sciences.*" The audience will scarcely

be aware of the intermingly eddies that were the concern of the patentee and inventor en route to the eventual outcome. He will be but seeing the soul through the body.

Were it possible to give precedence to any scientific field over the other in the piece of manufacture being described, chemistry and physics would lead. To them belongs the spectral ray. Playing that in the manner required is the hub of the practice. A particular handling of its beauty is needed to suit so fine a use. Special arrangements, such as the instrumental means through which alone it can be made fertile to these ends, are an essential. This unit is about to be described. Perhaps detailing that which belongs to it is not "best seller" reading. It will depend on how broad the mind that reads.

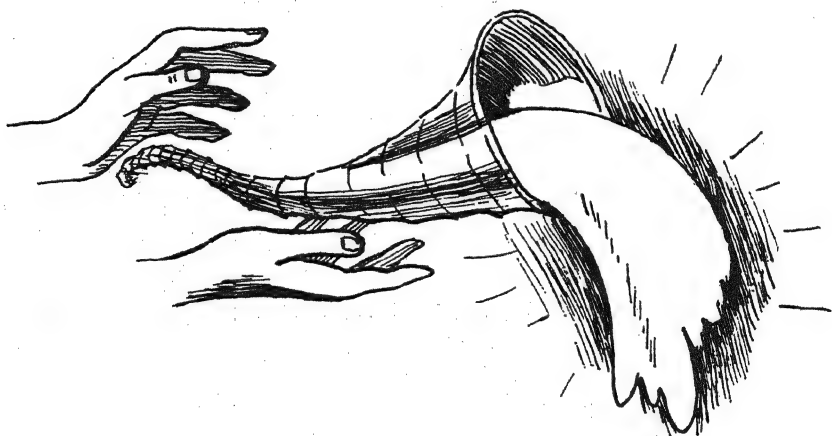
The provisions are now furnished to hand. The manufacturer need but make them, the artist use them, the composer inspire them. It is a wise

world that holds on to the good it has.

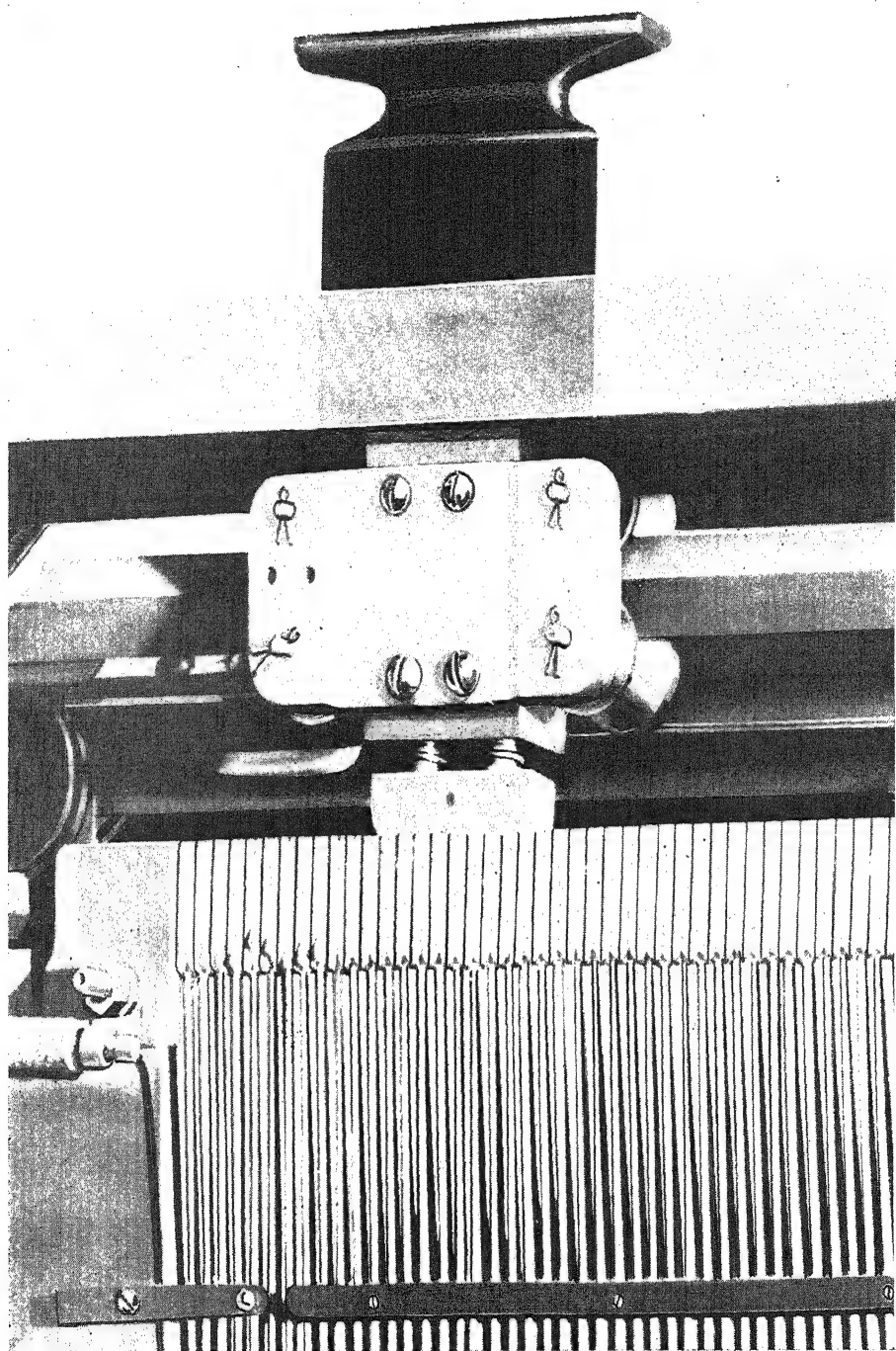
I must not forget to accent again still another form of industry that is involved. It is of import. It is that of first engraving and then printing the noting down on paper of any sequence in light-color playing conceptions that have been found to be inspirations fitting or useful, or needed as part of any other co-operating activity.

Even this printing would have come to pass long ere this, naturally and well, had it not been for the collective heads and bloated facial maps that, sticking above stuffed shirts over overfed size, stuck their combined proboscis, meaty and over-enlarged, into a corridor too fine for them in its leading. They wished an easy come. They realized not that such could be also an easy go.

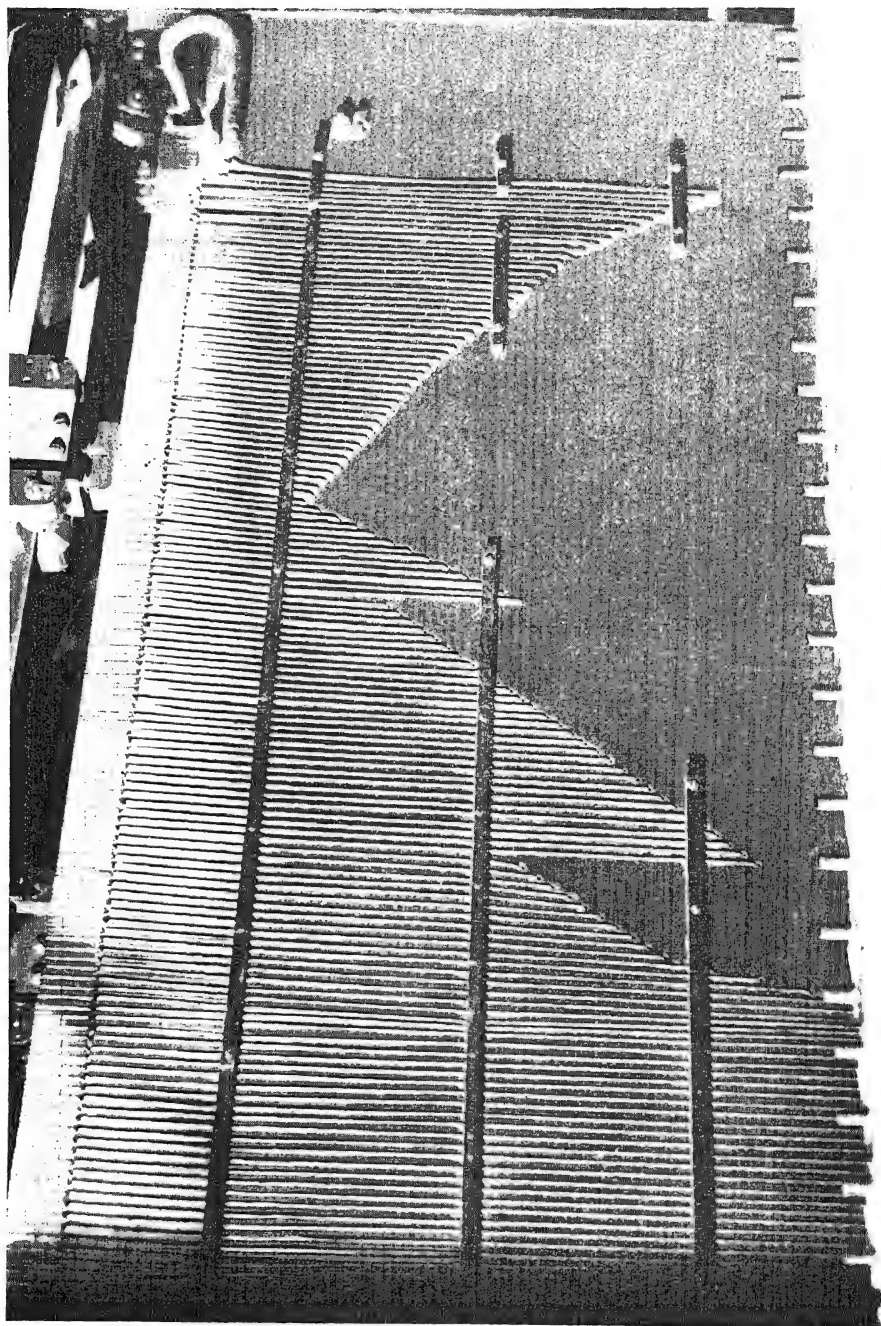
Hear ye! hear ye! I offer a fine art. I offer a fine art—full fledged on my hand outstretched. Read on.







THE SHADE AND TINT PART FOR THE PLAYING. A SLIDE, ROLL CONTACT



THE SCALE OF LEAST VISIBLE INCREMENTS TAKEN IN CONJUNCTION WITH ONE INCANDESCENT BULB OF 1500 WATT RATING. THE CONTACT MAKING POINT IS SHOWN. COMPOSITION INSULATING MATERIAL HAS ARRIVED

### III

CHAPTER



## PERTAINS TO THE ORGANIC WHOLE

A VERY bald and bare statement as to the organ of play as a whole could go as follows: It consists of a control centre from which all the performance is made or governed. This insures the carrying out that singleness of conception so essential to not falling in between the meant idea. The lamp units, due to the nature of a light source itself, and considered in conjunction with the wide range of the seeing field of vision, are of necessity disposed at varying distances away from this control centre and from each other, and this though their effects meet. Their dynamic potentials are played on from the above-mentioned central point, which preferably is of a console form. Please see my patent No. 1,945,635 Light-Color Instrument.

Essential features for practicing the art are placed at the control centre itself. The lamp-head units including their color control parts also have their own various arrangements.

All these also get their playing from this central point. Please see my patents Nos. 1,654,873 and 1,820,899.

Between the control centre and the instrumental parts as a whole are the conducting wires that interconnect the potentials. These may be likened to the cord-like structures or nerves by which sensations or stimulative impulses are transmitted to and from the brain. Indeed they may be considered in their way extensions to these, as they carry the initiating will, conceived within and through them.

These wires may be of great length and cover distances not inconsiderable. No auditorium is too large. None is too small. Every point of either is of consideration in the wiring. It is through all the requirements that the "I" of the artist behind his "me" gives the aesthetic ordering which may be, indeed is, a visualization of a sensory impulse that is a part of his being.

The incoming power completes the necessities for carrying the stimulæ, mechanical or finer.

The very real, the very tangible in all the above sought result of expression made and felt, is vouched for by the notation for indicating the light plays made. Think not that the soul of light eludes this. This is the written or printed process or system of signs, figures, etc., by means of which the sequences of light-color flux or play may be recorded and registered and their timing marked for duplication or replaying on the instrument constructed for the purpose. Please see my patent No. 1,385,944 for Notation for Indicating Light Effects. The sheet on which such notation is placed needs its rack on or near the console.

As to the very evident, instrumental necessities for the practice of the art, I am reminded of an episode at an early date of its starting. I needed a rest badly. I had just pushed through the making of an early instrument. I went abroad with my son and found myself guest in a charming English home—walled to the street in front, open to rose gardens at the rear.

My host was a very well-known if not famous chemist. I was full of my subject and had spoken of it. I was asked to play and as I sat down at the piano, and out of the corner of my eye, I saw my host lift a sheet to move it in front of a standing lamp. "Ah!" he said, "apparatus is necessary." There it was! Apparatus was needed.

The anxious inventor and investigator knows that one cannot turn on a light and tell it to go ahead and speak. The factors that must be

captured and, as it were, held in leash are well-nigh innumerable and *all have their material, mechanical, if you will, counterparts* for the playing. All of them are of a body. They are not only of an essence.

Once given the organ of play, as this one has been given him, the artist may sit at it as a king enthroned. He closes a circuit within himself. He closes circuits in which his instrument is included. He closes circuits that are a reciprocal "at" the individuals of his audience and "out" of them which yield the still larger encompassing of feeling and understanding. So first he himself, then he and his instrument, finally himself, his instrument, and his audience make an ever larger travelling around of understanding and feeling. And this understanding and feeling in this art is brought about by the expressive powers held in color, its timing, its ways of showing.

He, himself, is fed by the Great Powerhouse of the Universe. It gives him gratis fresh air, sunlight and goodness knows what. Stimulæ created within him he projects through his hand and foot members, across his medium, through the wood and iron of the instrument of play and so the conceptions he feels reach the beholders. It originated within himself. He slings it out in the play to reach the centres of those who see. It is a very grand circuit indeed that joins the audience to the artist. If indeed the magnetism of an iron flows in a current closed, why not similarly the human magnetism so largely exerted by the artist in that finest of travelling around made complete in him?

Whether the course around gets

Oct. 15, 1929.

M. H. GREENEWALT

1,731,772

INSTRUMENT FOR LIGHT AND COLOR PLAY

Filed Jan. 3, 1924

4 Sheets-Sheet 4

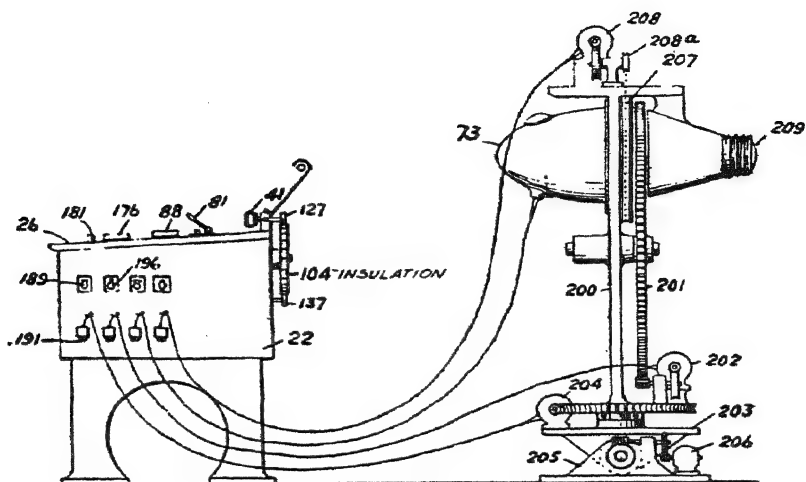


Fig. 14

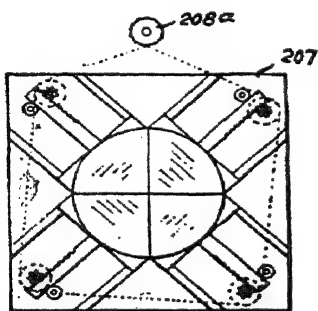


Fig. 15.

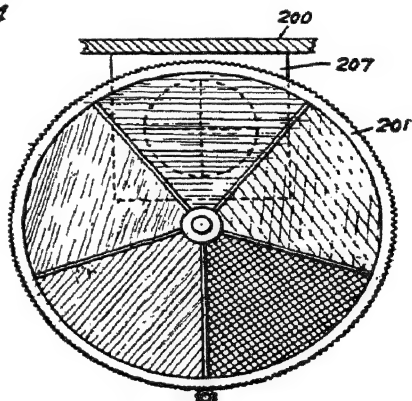


Fig. 16.

INVENTOR

Mary Hallock Greenewalt

BY

Busey and Harding  
ATTORNEYS

AN EARLY PATENT SHEET DRAWING SHOWING  
LAMPS AND LAMP-HEAD FACTORS CONTROLLED  
FROM A CONSOLE TYPE CONTROL CENTRE. FROM A  
PATENT ISSUED TO THE AUTHOR

back from the auditor to the brain and sensory self of the artist producing I do not know. I do know that an instrumentalist realizes the state of mind and attitude of his audience towards that which he is producing. This with them at a distance away across his footlights. It may be that this comes about through slight and intangible concrete showings: the complete and absorbed quiet, the telltale cough, the rattle of programme. But then the unhandling of a question so interesting may come about through *just—love of the peanut!!!*

Shall I tell you of the time that the little tuber made a noise that for the moment bade fair to unsaddle the great, the only Chopin?

I presume it could be considered as having happened in the earlier days of this country's evolution. The occasion was a concert by a symphony orchestra of metropolitan calibre. I was the soloist. The conductor was a well-known composer of Irish birth. The concert was in a small town included in the tour's itinerary.

As an educational donation to the public at large the upper gallery had been opened to any who would come. They came bringing their bags of peanuts along. I had played the difficult Concerto and was scheduled for a group of piano numbers. The first of these was a dusky, subtle etude by Chopin. Whether by then the peanut shells had gotten underfoot or no I cannot tell. No cannon shots could have sounded louder to my ears. It was all I could do to play the numbers. Noise, as a completely innocent actor, bade fair to utterly destroy the mutual esteem and rapprochement of artist with his audience. Yes, the circle created

is a sensitive one. Radio is crude compared to it.

In its similar way, *unscheduled light* filtering in from somewhere may entirely destroy a light-color play performance. It may be the destroying factor in the color drama. Such trifle also can unbalance the mutual response that is due. The above point cannot be too often stressed. *Unwanted light* may be more destructive to the light play sequence than noise of peanut shells as tom-tom against the possibilities of music. It hides also. Just as the other does.

Light-color playing as a means of human expression is strictly artificial. It is made by man for man. It must have the tool for play. Outside, the Universe of color goes its own way. There, it is unconditioned by placing of eyes or throbbings of blood. Out there it is not *human*. It is of the fine art that brings it in and makes it a human speech. And for this its own organic whole is needed, as the means to the end.

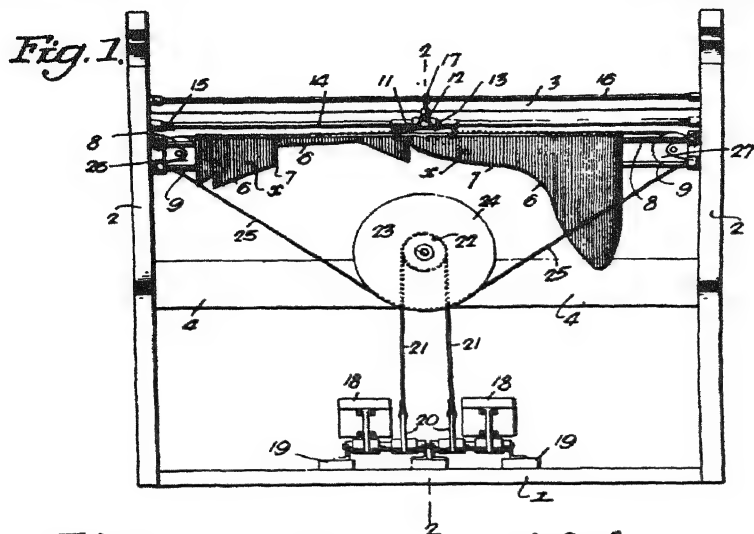
Briefly we have hinted at the apparatus as a whole. Its first development was demonstrated by myself as early as the summer of 1919. The unit was the one covered by my patent No. 1,357,773. Even that early date the factors then arrived at and constructed were *standard*. No evasion of the mathematics applied could be made, though at one time the necessity for boring many holes through a two-inch slate panel brought about the temptation.

#### THE SARABET

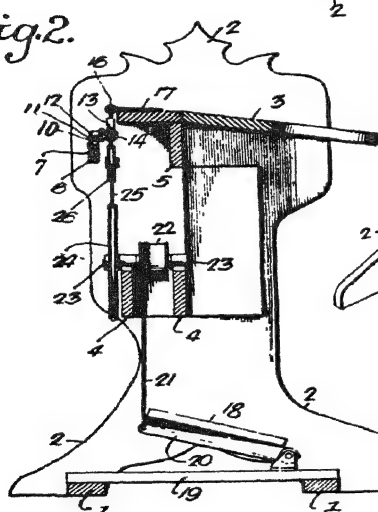
I have called this console of play the Sarabet. The word is a contraction of my mother's name which was Sara Tabet. She was the product of countless carefully pruned genera-

1,357,773.

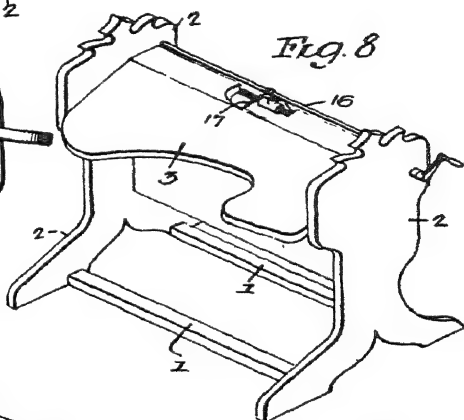
Patented Nov. 2, 1920.  
2 SHEETS SHEET 1



*Fig. 2.*



*Fig. 8.*



Inventor:—  
Mary Hallock Greenwalt  
by her Attorneys—  
Hewson & Hewson

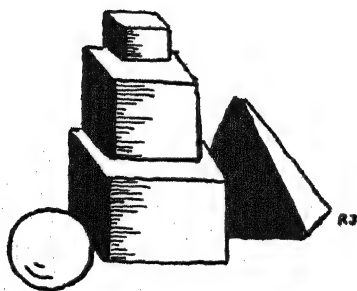
DRAWING FROM PATENT ISSUED TO THE AUTHOR  
NOVEMBER 2, 1920, OF THE LIGHT-PLAY CONSOLE  
DEMONSTRATED IN SEPTEMBER, 1919, AT THE  
CASINO IN WILDWOOD, NEW JERSEY. IT IS THE  
FIRST LIGHT-COLOR PLAY CONSOLE EVER CON-  
STRUCTED AND PATENTED

tions. Hers was a distinguished family to which the title of princess cannot add. Her great beauty and exquisite sensitiveness in nurture and being fit having her name lent to this new beauty. Fit for the naming of a new jewelled revelation of character and sentiment through art.

So this instrument consists preferably of a console table-like form of control centre. The lamps are, as it were, the mouths through which the whole speaks. It is the executant artist who would not have made the mistake in thinking that wall-hung objects such as switchboards could serve equally well. The many factors need service of both hands and feet. To be comfortably seated presupposes the proper handling of the infinitude of color from moment to moment. It is the console form of control centre that will be described in this book.

It is fair to the subject as a whole to note here that my experimentations did not from the beginning point to this console form. My thought then was that the results were of extreme ease for the getting. This was erroneous. Indeed so much had to be ploughed through, that one point after another had to be cleared before the instrument of play itself loomed into view. Indeed eleven years of work were spent before the right instrumentality took form and shape.

Those not particularly interested in the enumeration of details can skip the following chapter. Such broad mention, such simple mention of requirements and parts will be carefully gone into as this work progresses. The facts should carry much to interest the general as well as the specialized interest.







## IV

### CHAPTER

## GENERAL ORGANIZATION OF THE INSTRUMENTAL PARTS

ON THE console proper are placed:

(1) The color, the color-shade, the color-tint scale playing units with their operating adjuncts. (2) The current routing actuators. (3) The wiring that is self-contained within the console. (4) The wiring that leads in and out of this central control point. (5) The foot pedal controls with their arrangements. (6) The control for the scales as these are extended in their scope. Please see my patent No. 1,854,547 and patent No. 1,793,284. (7) Such other necessities as color-filter moving buttons and signalling means. Please see my patent No. 1,820,899. (8) Gadgets such as buzzer buttons, plugs and any special additional may be added as the circumstance demands. Not to be forgotten is the bench or chair of suitable height for right foot and arm play—the light score sheet rack—and a small well-shielded bulb to light both instrument and score in darkness. A means for making luminous, by iridescence, the characters on a sheet when light is missing may also be mentioned. I spent a good

deal of time at one point of this labor on this phase of iridescence. It seems to be resurrected now for a differing purpose and many differing purposes.

The color-shade, color-tint scales, from the very nature of the wide scope in chief of the phenomenon of color are the hub of the playing means. As in the locomotive's throttle, it holds its importance to have the hand and foot *directly in touch* with the playing means on and of these scales. Their change capacities are so slight. Indirect control can play ducks and drakes with their exact availability when wanted or needed. When I write of the scope in chief I am referring to the initial, the fine end of the scale. The scale points get larger, coarser, cruder as the eye is filled with the light. It is well for the scale gradations at the initiating points of these to be *directly dealt* out from the console itself. Indirect control of their fastidious finenesses would cause a loss of effect hard to compensate for through the technique of play. The

timing may be exigent to a degree. To wait on a long distance control could easily lose the instant's wants.

### THE ACTUATORS

The actuators allow a *choice in the routing of currents* within the console proper. This saves a duplication in equipment. It is essential where the factors are many and the hands but two. It simplifies the base and saves space. This choice as to current routing has been done through a reasoning, fundamental to a viewpoint sound, and logical to the necessities complete. The very variety possible to ray color demands them.

The console contained wiring for these includes a multiple contact fluid unit of considerable ingenuity of development.

### THE LAMP HEAD

By "lamp head" I am understanding the light source, together with the various arrangements this needs to properly fit into the practice of the art. I have called these units "nouralions." Many of their attendant requisites have been brought about and into being by the conception of Nourathar and a name that identifies them with the art is not only right but fitting. The nouralions may range from bare sources to a complex singleness in the unit that is invested with a considerable variety of adjustments and parts.

Outside such obvious necessities as reflectors, sockets, leads with their plugs and stands, there is a variety of adjuncts special to the position of light sources for the art.

### MOVING OF A LAMP UNIT BY REMOTE CONTROL

Although conceivably it may prove a help to invest a lamp with such mechanical arrangement as will move its angles of position by remote control from the console, such arrangement seems now less and less necessary. Please see my patent No. 1,820,899. In conjunction with lighting special sets and acts on the stage it can still save a certain multiplication of the units.

It is interesting how a brain can run ahead of itself in an invention not too simple. In an early patent drawing of mine is shown not only the moving of the lamp in whole, changing the filters in front of the same, but the capacity to reduce or enlarge the lamp opening all by remote control from the console. This particular drawing shows also a choice as to which lamps shall be plugged at the moment during the play. The plugs show special convolution that shall prevent plugging in the wrong lamp in darkness or otherwise.

### COLOR FILTERING

Obviously in an art which deals in the color of light the ray filtering means are the primal requisites of the sources. The light's color phases are of parallel importance to the light itself. It is the filtering means that separate color ray from color ray inherent in the sum total of the light source as a whole.

Prisms are not suitable to the purpose, unless, indeed, transparent dyes are veritably made up of minutest crystals. In that case it is a prismatic field which, impregnated within a suitable sheet, separates the rays or breaks them up into their color

phases. *The field of transparent dyes governs in this art the production of colored light.* It is the simplest. It is the quickest available. Colored glass does not evade the point.

The character of the sheet within which color filtering dyes may be impregnated is of importance. This art is now well known and the purchase of sheets with the needed dyes offers no difficulties.

#### COLOR FILTERING SHEETS

An essential part of the lamp head is the color filtering medium and its mounting in front of the light source. These may be plural in character—moved in front of the one lamp opening by remote control or they may be one to the lamp. A rigid closing of the space between reflector and filters is not to be overlooked. A wrong arrangement will announce itself by white light leakage.

The orderly dye formulae are now well known. They are on record. The sheets so impregnated are easily purchasable for very little money per sheet. The artist need not concern himself but with the procuring of them.

Where several filters are to be moved in front of the one lamp opening, the remote control mechanism is at the lamp though manipulated from the console. Signalling means as to the color and its wanted position may show through small colored pilot lights at the console. The lamp opening is, of necessity, turned away from the performer. It is destructive to the effect to *try* for the rays wanted. The signalling of the filter and its position makes for certainty and assurance that the needed color will be available at the particular moment it is called for.

#### NUMBER OF LIGHT SOURCES

The variety found in color, in itself alone, suggests a plurality of light sources. There is still a further unsuspected factor. This is no less a one than the wide range of the seeing field of vision. The art is broad as atmosphere itself. This breadth is one deciding element as to the art's novelty. A restricted space, such as a motion picture square, featured before the eyes with color, even within a general darkness and so unconfused, cannot fulfil the eyes' wide demands in that regard. The reasoning underlying the point could be extensive and subtle, as, for example, color may suggest a feeling even with the picture. Manifestly, it cannot surround all of the man.

We will confine ourselves to what seems to me a parallel example. Put your finger or toe in water warm or cold. Get yourself in the tub entire. The body feels the complete satisfaction only on inclusion of the whole body. The *circle* of effect is then complete. The *general influence* makes up for that which lacks within a limited detail a limited bit in space of picture or design.

The eyes see much all at once. The light sources must be of sufficient number to encompass their seeing range. This is so at least when climax needs the interior entire as its foil.

This requires the light sources' distribution being at varying distances from their control point as well as from each other. They are in their way an armada. The admiral commands from his one position of vantage. Though separated in space, their effects meet and combine.

# سَرَابِيت

## الآلة التي يلعب عليها الفنّ الجميل المعروف بعطر النور أو (نور عطر)

“SARABET” IN ARABIC SCRIPT. THE INSTRUMENT ON WHICH IS PLAYED THE BEAUTIFUL ART WHICH IS KNOWN AS “ATTAR AL-NOUR” OR “NOUR ATTAR”

### THE NOTATION

A beautiful conception in light-color play is not easily arrived at. It may be rare as any great beauty is choice. Once arrived at, the system for its recording is here provided. Please see my patent No. 1,385,944 for Notation for Indicating Light Effects.

The notation is standard as the instrument on and through which it is carried out is standard.

Such notation is logically called the Light Scoring. It makes a permanent record of the play sequences conceived for the instrument to produce. It, therefore, perpetuates the fruit the inspiration causes to bloom.

### THE FLUORESCENT SCORE

As an echo from a time long gone by I see a notice in yesterday's paper of a fluorescent plastic envelope that allows seeing markings in darkness. I spent much time on the problem years ago. The results may still bear fruit for this particular purpose. They could allow seeing the score without disturbance by white of light for the reading. At the moment textiles are made that glow in the dark. To be had are luminous arm bands, hat bands and belts. These will indicate, so we are told, the position and movements of a person in the dark. There is also luminous hosiery! Why not luminous print for light scores?

## THE MECHANICS

The strictly mechanical end of the instrument as a whole holds a considerable interest. This is in the very nature of the art an important part of the development. The medium used, that of light color, is of an exquisite fineness. It is matched in superlative sensitiveness by the feelings to which it is to be made obedient. Movement by the muscles acting through the instrument must be flexible and sensitive. The timing brooks no hampering.

The interactions of muscle and nerve in the performer must find their perfect opposites in the movement of the instrumental parts. The viewers of the play understand the meaning and the messages transmitted *because they also have such like interactions as are in the performer within themselves.*

Broadly I have sketched the general contour of the organ of play. It is the skeleton, the vertebrae, the rigid base that can be made to support flesh of conception, form of feeling. It offers another sort of athar. This one is not squeezed from the life of a rose, but the life of a woman or man. It is another aroma of life in general. The life of the inventor has made a full contribution. There are now many proofs, there are many experts testifying to the worth, indeed the necessity for the art and the vehicle instrumental in the carrying through and forwards.

## THE INSTRUMENT STANDARD

Minor inconsequential improvements are always in order in any instrument. The central and essential true and valid factors already developed in the apparatus being written about will stand. They are mathematically exact and flexibly

articulated. It is an orderly and co-ordinated whole. It is the right object for the large purpose.

It is standard because it starts with fundamentals of human body, of ethereal light. The human eye is the same everywhere. The human being himself is the measure. And this stands whether he be of Kamchatka or Timbaktu. It is standard for any auditorium no matter how large, how small. At the time of making application the patent examiner was forced to say that no such form as that of a light-play console had ever previously been shown irrespective of any limitations placed in the claims.

## THIS INSTRUMENT ORIGINAL, NOVEL

I know of all the attempts to hold the eyes and ears as Siamese twins. I mean by this that every note of the musical scale is a counterpart physically of a color. I know of the magic lantern excursions and the motion picture garblings. There never was the conception of spectral color per se, of spectral color in itself alone as a means of fine art expression prior to this one. There never was a notion of using light in and of itself alone as a means of emotional expression before this labor. There never was an apparatus conceived, developed, devised and constructed to this high end on true lines prior to the instrument about to be described. The United States Patent Office has said it in no unmistakable terms. I except the inventor's own single attempt to make the arc light halfway flexible enough for a narrow demonstration in 1916.

By being amiable enough to read you are assisting at a première. I know well of what I speak.



# V

## CHAPTER

### THE SCALE IN FINE ART

**S**CALE is a foundation of much recordable art. It alone allows attempting the grand escalade of such up the ticklish slopes of Mt. Parnassus. It alone furnishes the sound stepping stones for travel along the difficult, delicate, uncertain and unstable path of expression that is exquisite. The *definite*, the *determinate measure* is *indispensable* for the outlining of conceptions in feeling and the recording of these. A scale offers this. Subtending the art life, it may also perpetuate the conceptions that would otherwise be lost. It does this for as long as the sheet and the mark last.

Such a system of designating units of measure may be arrived at through arrangement arbitrary, its progression fixed or made by *common agreement*. Or, it follows a *positive absolute*. Indeed a scale may be based on both: the arbitrary and the absolute. Such a one is the musical scale where the octave is beyond altering, though the divisions within the octave span may be made subject to choice.

When I think of the word octave I am reminded of the young woman who got tangled up over it. It was something as the centipede that beginning to "wonder which leg goes after which lay distracted in a ditch considering how to run." She could not categorically explain to herself that which in this sound span seemed to her an "impasse." It appeared not reasonable to a sane mind how the note and its octave sound could be one and the same by fact and name while sounding different.

As a matter of fact in both the note and its duplication above or below the *cause* of vibration is the *same*. It is but made to vibrate with twice the frequency for its higher identities. The notes are the same through doubled frequency. *They have harmonies which agree and agree invariably*. The octave note is an integral part of its other selves. It is one of the consonants in common with its overtones. It is heard with its fundamental. It is an indissoluble part of it. The relation is a fixed one.

### *No Octave to Light*

Since such twistings of the imagination have been attempted, let me here make plain that *there is no octave or octaves through multiplied vibrations to light or its color*. These can neither be made to *be* or *have* one. It is an absurdity to call on any "umteenth" degree or multiplication of any such supposed rate of vibration as a possible bridge from sound to light as has been suggested. It was an Englishman, of course, who hauled in "indigo" as one in the spectral ray circle. Who but an Englishman would determine that "an' he wills it" another kind of ray will be added to the spectrum to suit his particular hypothesis—in this case fundamentally wrong? There is no octave to color at all. Blue does not double the wave timing of red.

*Light is different in kind from sound*. It is not a vibration. It is a quanta or wave or indeed both. It is of an existence that may be induced not initiated. And by that token the ear also is an organ distinct in every way from the eye.

Moreover, one color is not an overtone of another for all are simultaneously not successively present in the white of the light. Each spectral ray has a realm all its own. They differ in values and qualities. They are distinct and in their primal state unchangeable. *They are absolute*. They are so definite in their natures as to be *unmistakably capable of isolation one from the other*.

So the light ray in its primary colors *offers an absolute* on which to base its scales. These primary colors are by nature fixed. They are non-relative. They are not dependent on a standard which is arbitrary. They

are so as an unchangeable integral of Creation itself.

The scale of color shade also is of the absolute since its gradations are determined by the capacities of the human eye itself. The eye offers a standard. *It allows no substitution*. The color-shade scale has, therefore, its fixed relation to a state that may be also considered as unchangeable. Such light scale of shades is, therefore, not arrived at autocratically. It also is of the absolute.

Since tint is gotten by addition of the points in the scale of shades made in the white of the light, what is said of color shade is also true of color tint. *So the light scales are based on an absolute*, an absolute not subject to whim or change. It must remain *the* scale or cease to be true.

It is a fact that some of these successive degrees as increase or decrease to the eye may be consistently skipped in orderly recurring omissions. Sometimes the circumstances excuse this—but the least tampering the better. The progression absolute maintains as the base, no matter the leeway that is allowed as to the systematically omitted shades or tint.

Three of the fine arts are now made by successions subject to a certain timing. These are poetry, music, and now Nourathar. The alphabet in poetry is arbitrary. It is not an absolute. It has been arrived at by common consent. The vibrations that form musical sounds are different *in kind* from quanta or wave in color ray. These musical sounds may be backed by an absolute such as what is now spoken of as the chord of nature. They may be conditioned by a physiological some-

thing inherent to body. The point is an interesting one.

Belief now exists that the light ray consists of minute particles of matter bombarded off into space. Varying *quantity*, it would seem, governs the steps in the scale for color shade, the scale for color tint. The steps may be put down in arithmetic figures.

The primary spectral colors are, as I have said, in their nature absolute. It is the number of these color rays or rather their ray quantas that control the color darkness or brightness, or in other words their shades. These grades constitute the playing scales of this art. This shade scale in white supplies the factor of tint. The scale points of the scale units on the Sarabet console are absolute in their definiteness.

The amounts that form the scale units are not counted. The numerical totals are, nevertheless, arrived at by the more of them, the less of them. The determining factor as to these is what the human eye notes as constituting a least increment of visibility. *The amounts are mathematically noted in the changes made in the force that creates the shade results.*

### *Light Preceded the Eye*

It is probably true that light preceded the coming of an eye to see and it is logical to suppose that this organ developed in keeping with any and every potential held in the darknesses and brightnesses of, let us say, the light of day. Or rather that to it no gradations exist but those it sees. These arranged in a progressive and graded series would constitute a scale in light for use in an art that caters to the human eye. Such a scale must be capable of pro-

ducing for it and *at will* any degree of light brightness, that can register on it as such, from the absolute of darkness to the highest brightness it can perceive with comfort and safety to it.

To arrive at this required that *system of arithmetical notation* as did designate these true and universal units of measurement made out in terms of brightness of darkness to vision.

### *The Kind of the Light*

I am no physicist by vocation. When I made the statement that light is an existent that may be induced but not initiated, I knew it as a lead I, myself, could not follow by proof. Certain reasons might come before one. A match or spark may start a motion or result so much in excess of the minute impetus applied. A force must be there *latent* all ready made for an excuse to set itself free. Heat or light is not a customer passive. Like the green apple eaten by "Johnny Jones and his sister Sue it may start a trouble one can't subdue."

The *capacity* for being a cause of light is therefore *latent*. It is existent in any object that may be treated to a point. Such capacity is not created. It is but set in motion.

The circumstances necessary for arriving at a graduated heating that is recordable as a light scale is a part of this art.

### *Different Illuminants*

The knot of wood full of pitch as a torch, the wick floating on oil, the candle, the illumination by gas, the electric arc lamp—I do not say that some sort of timed expression by means of light would have been



impossible to these. It is quite certain that none before myself was attempted. The initiating thought was missing. And no scale through these could have been arrived at, certainly not operably.

### *The Electric Arc Lamp*

Indeed the thought came to me, the initiator of this fine art, while the electric arc lamp was still holding its sway. I spent considerable time, expense and trouble, and succeeded in making this form of illuminant yield a certain flexible expressiveness. That was the first step to gain a promise made by anyone anywhere. It succeeded enough to cause me to coin the phrase of "mobile light."

But no flame light of a list long could have easily allowed or at all such mathematically accurate and dependable scale that could, for example, be the basis of a notation to indicate light effects.

### *Miniature Suns*

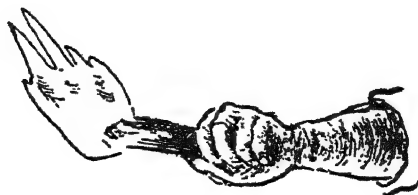
What the great sun and the motion of the earth about it bred into the human eye, artificial miniature suns had to become obedient to. And then these points in visibility had to be recognized, labelled and produced.

At the time, and who knows it may

be for all time to come, the electric incandescent bulb offered the unit most suitable for creating a scale of least visible increments. Open spaces for the oxygen of the air let in the extraneous light in all illuminants needing this oxygen. This was so with all the primitive illuminants mentioned above. The intruding white of the light was an obstructing factor. The light could not be imprisoned to be measured. It itself was too flighty to be dependable.

The *glass enclosed*, gas heightened metal filament of the incandescent electric bulb provided "a horse of a different color." The cruder more embryonic illuminants above mentioned were displaced. Incandescence of these bulbs was of no flame variety. Its filament could be dependably heated and dependably measured in its changings. The bulb's existence was substantially constant, uninterrupted, unbroken, unvarying, unceasing. It did at length deteriorate, it is true. Its life expectancy is, of course, excluded. Its course, while it lasted, was of a *continued inducing*. These qualities helped the creating and computing of a light scale.

*The scale of light to the eye is one of producing least visible increments of brightness to it.*



# VI

## CHAPTER

### THE LIGHT SCALE IN GENERAL

APPLYING a certain heat to matter may create luminosity. This can be of a greater or lesser brilliance. On such *degrees of brightness* hangs a scale of light. Such a scale is not only a necessity for practicing the fine art of light-color playing, *it is a basic for arriving at a definite measure of all color shade and tint*, no matter through what means such shade and tint are made.

The problem of arriving at a light scale lay then in applying that *measured* heat that could create a *measured* incandescence. In the ultimate this meant the getting, at will, the needed varying quantities of rays that could spell increments of visibility to the human eye. The approval of what constituted least increments of visibility lay in that organ. That approval was a chief factor. It was ready made and available. In this way the eye set a measure, also, as an absolute.

The tungsten filament, in an enclosed electric bulb, offered for the moment an ideal experimental intermediate. The application to this of measured heat through measured electricity did much to round out the necessities.

With a light source of given potential, its heat values, in conjunction with the degrees of luminescence, were computed and made available in such increase or decrease of quantities as would constitute a logical light scale to the eye. On

such scale hinges also color shade and color tint. For these latter one must presuppose a ray filter of a dependable entity or capacity as one of the factors.

#### *Graded Heating for Graded Light*

The light producing object within these miniature suns, in other words the filament, allowed of a gradual heating. There followed a graded luminosity.

The eye was at hand to tell *which of these gradations counted, made effect on it for progressive shade, for progressive tint*, as well as for progressive brightness of the white of the light, its sum total of all the colors.

#### *The Bulb Used*

Electric light bulbs are of varying capacities. Christmas tree bulbs, it is plain, no matter how multiplied, would not do. Small bulbs for reasons which could be gone into would not avail for purposes of measure. The bulb of highest quantity rating available at the time was chosen. It was known as a tungsten filament incandescent bulb of a 1500-watt capacity. It was procurable at the time only on special order. In itself alone it allowed enough illumination to light a little hamlet. It is my opinion that with a carefully prepared reflecting interior this light quantity may always be sufficient as measure for the fine, the beginning end of the scale. Further along in its

possible extension such a scale may be indefinitely cumulated, through light sources added further. The points of such scale extension get coarser and coarser as the tolerance of the eye gets, by addition of light, less susceptible.

### *The Filament*

One must "take off one's hat" in appreciation of the fine development represented in the constitution of the tungsten material used in the filament of this high-power bulb. It has *that*, like wellbornness, wherever such be sensed, whether in bulldog or man or metaphorical matter. *It is quality.* It is quality of a high order. The wellborn may be likened to a well-tempered clavichord on which notes of good, of bad, of enduring or unenduring may be banged at, still they not only stand the strain but overtop it.

The tungsten filament stood up for every point of heat applied to it—stood up *at every discrete degree of such heat scale.* This characteristic was not in mind on its conditioning. It was found to stand up to such after the fact. Certainly it had never previously been tested for its capacity to measure up *at every point* to the eons old tempering of the human eye for perception of every conceivable or perceivable light gradation.

### *Millilamberts to the Eye*

The varying amounts or rather degrees of light which the eye could progressively note were arrived at. Every degree which the eye could perceive as a change from the previous degree was noted down, and from total blackness up. The ohmic resistance of the electric wire of particular sort was computed for every

point as would heat the filament to that degree to produce the least degree luminosities the eye called for as such. *This was done.* The mathematical computations fill a good-sized pamphlet of figures. Copies of these are filed away in at least three of the largest electric companies of the country to whom I turned for the manufacturing of the unit and in at least one repository of historical archives. I early turned the figures into a fashioned unit on which these degrees of darknesses of brightnesses may be played and at the very moment the play requires.

*United States Patent No. 1,357,773*

This labor is covered by my United States Patent No. 1,357,773. I warn all manufacturers of light-color play instruments not to make "ducks or drakes" of this scale. Ignorance, carelessness, lack of thoroughness for the sake of gain have destroyed too much of this world's values. It is time to take thought and learn—to pull in the gold-made horns and hoofs and force capital to take a back seat to the careful, the meticulous vision.

It behooves no one to say: "We can't sell a theatre installation for \$250,000 of least visible increments but we can get the price for tons and tons of cast iron and cement housing some sort of crude commutation." These men must remember that the particular and the minute count. Who knows? They themselves may be killed by bugs so small as only to be distinguished by the finest microscope, and not even by that.

These men may die of *bibikidus*. What! You have never heard of the word? Of course not, because I have only just coined it. It means much not exactly complimentary.

These gradations then, either for a light-play scale or indirectly for measure of color outside of light, are those that the human eye perceives as progressions in its seeing capability. Since the eye brooks no cheating nor teasing there may be no skipped shades it can note. A playing scale of and for light to the eye must create graduations smoothly successive—only so many as can and *none that cannot register on it*. All shades of the darker, the brighter must be included. There would be no way of avoiding such complete covering, except, as I mentioned, by a regular and deliberate skipping that does not in itself disarrange the scale as a whole.

#### *Least Visible Increments*

Every least increment of visibility must be taken account of. What is true of the white of the light is also true as to its color rays. It is increase or decrease in the number of the color rays or quanta that creates the darker showing of the fixed spectral ray or its brighter scope. Enveloped within degree of darkness is also degree of brightness. It is shade and tint of the same spectral color. You may easily try the truth yourself. Place two pieces of material, one of darker, the other of brighter shade, contiguously. As the same twilight of day comes to both, the dark will disappear first, the bright continuing to send its presence to the eye. Though the sun's rays were being reduced in their amounts, the brighter kept on reflecting the diminished quantity beyond the darker one.

The wave length is in every case constant. Not *it*, but only its quantity is altered. Apropos of this, I

am reminded that it was a scientist assisting, in turn, three Nobel prize winners in physics who, confronted unexpectedly with the question, said offhand that "the spectral ray stays itself, does not alter in its darker or brighter showing." Though it may remain true to itself, its result is varied, through quantity. That is in its appearance of darker, of brighter; the less of itself, the more of itself.

Simply said: In dyes, in pigments, impregnated into stuffs, the impregnated *matter* is darker, is brighter. In color of light the greater or lesser luminosity, based on the quantity of the rays, controls the shade and tint. Both indirectly are synonymous of the one truth. Indeed the impregnated dye is darker because it reflects less of the ray quantity striking it. And the converse is also true. In both cases, in colored stuffs or colored light either, it is a matter of scarcity or numerousness of the rays—the rays themselves remaining integrally the same and unchanged. One may put it also this way: that in darknesses, in greying of the light, the lesser quantity in the rays is *spread further apart*. Less comes to the eye from the space that reflects and hence the darker colored light or the brighter.

The values of heat, as these are applied to the lamp filament back of the color filter, cause the greater or lesser luminosity. The values in color brightnesses result. In this way the dynamics of color shade and tint are arrived at.

The points in this scale that would constitute least increments of visibility to the human eye were carefully, were progressively computed.

The way of increase is naturally one of decrease taken in converse.

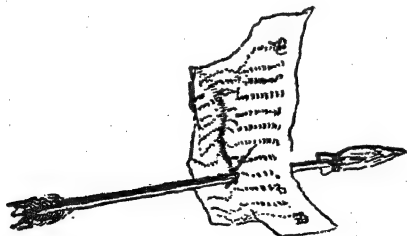
Theoretically, the wire could heat in measure finer than those spelling added luminosity to even so fine an organ as the human eye. It necessitated no skipping. The particular points were those that needed and got the determination.

The gamut proved long. The gamut proved deep. But then consider the gamut of feeling. How wide are the perturbations possible to the human mind? The picayune medium could not have matched the sensings, the passions of not only the one, but the many individuals that share the spaces on this globe.

In the drama unfolded within these pages, the Prologue, the curtain raiser belongs to the darkness, the brightness scale. It but makes way for the leading lady, spectral color, to step forth in all her glory and perform.

#### *A Brief Recapitulation*

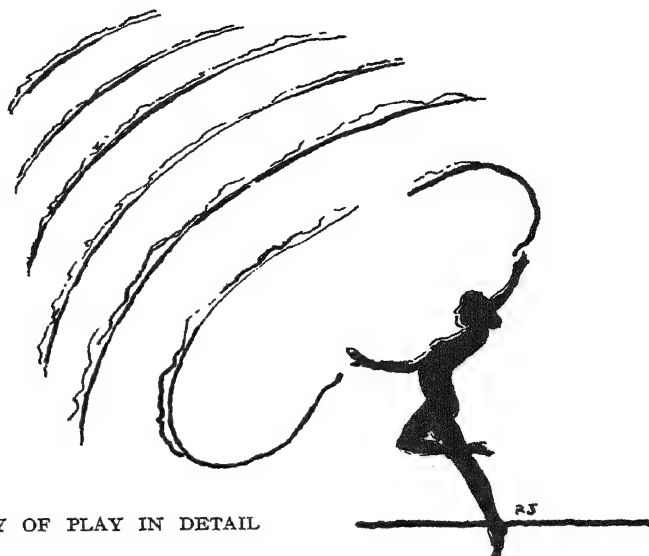
1. A scale is an essential for the intelligent practice of the fine art of light-color playing and the recording of the same.
2. The playing scale for Nourathar is found in the degrees of least visible increases or decreases of luminosity to the human eye.
3. Varying heat applied to a lamp filament creates these.
4. Successive places in ascending (for brightness) or descending (for darkness) determine the figures representing all degrees of visibility.
5. These dynamic points give the playing gamut.
6. The brighter the light the *more* rays emitted, these considered as waves or concrete as quanta and vice versa.
7. The scale for the white of the light gives also that for its color shades and tints, since the color rays are part of the sum total of the white.
8. The spectral ray itself does not alter but only the quantity of itself.
9. Darker or brighter shades of the one spectral color are produced through greater or lesser number of the rays, or the amount of the quanta impinging on the object that shows them forth.
10. Orderly apportionment of progressive degrees create a path in what otherwise would be a wilderness—no track to guide, nor compass, nor dial, a footless straying.
11. From midnight darkness to mid-day brightness has been a scope playing on the emotional development of man in a natural state. This formed a basis for the artificial, in other words, for this form of fine art speech.



## VII

CHAPTER

THE AGENCY OF PLAY IN DETAIL



## COLOR, THE LEADING LADY, ENTERS

I CONFESS that, without the well-nigh miraculous beauty of the *color ray*, the art of which I write might conceivably not exist. I do not belittle expression through what is known as "black and white" or darkness and brightness play in the white of the light without spectral range, but certainly the appeal of such would be far and away less beautiful, less drawing, less spectacular. I think the rare splendor of the phenomenon used must be kept in mind by those seeking the right weight of this subject as a whole.

### THE COLOR RAY

The light ray is, in a manner of speaking, a bundle. It is a "multum in parvo." It makes for a group of six not one. It is a collection, a holding single of *all the color there is*, no matter *where* or *how* seen. These six are the virgin colors: vestal, pure, true, unadulterated, unchangeable, fixed. They are fixed in their primal

nature not in the multitudinous variety of visionings they have been made to allow of themselves.

You might say that the light ray has six faces. Each is the more resplendently beautiful as it is viewed separately from the others. They have well-nigh always given an inkling of their ravishment through medium of priceless precious stone. But these stones, to be seen at their best, must be replenished by willing glances from their parent light showing on them the renewed favor of her entrancing glance. In the marvel of which we are writing, we get but a little peep from ring or necklace or even rainbow, but in this art it can become of a judicious *everywhere*, so far as the interior of practice goes.

### *Extent of Spectral Ray Used*

The precious stone is minute. Here we deal out the amazing wonder on a scope that can be made to govern *the entire wide range of the seeing field of vision* or at least unconfused to it.

### *Separating the Rays*

Though these six phenomena are integrally one, they may be segregated and isolated with little difficulty. This is one of the things that unexpectedly ease the feet on an aesthetic highway hard. A crystal at an angle may show them forth. The dewdrop, the glass of water in the sun will glance them. Go not prism searching or crystal gazing for the means of getting them in quantity, in a spread. There are means more suitable.

### *The Transparent Dye*

A transparent dye permeating a filmy sheet will do it. But then it may be indeed that such dye is an army of multitudinous, minute crystals, that, ranged in soldier-like phalanxes, turn their faces at that angle of extreme nicety which may give you, as general, the satisfaction of review you are seeking.

A crystal, a prism of size, is too niggardly in its color outgive. It is too unhandy in shape and bulk. So, one more problem, which at first sight seems of monumental difficulty, mercifully proves amenable, surprisingly submissive and tractable.

### *The Sheet of Transparent Dye*

The sheet within which the color dye is permeated, that one made to let through the colored light, must be noninflammable. It could well be gelatine or even possibly glass or other base. There is much to be said as to the character of the holding base. There are many reasons pro and con as to this one and that. That which is incidental to the objective in chief must be left for others to lay out completely on a rainy day. Much has already been done in the

particular art of light filtering mediums.

I once had the right to file patent application on a transparent dye formula. The subject of Nourathar, as a whole, was like falling on a mine of unexpected resources to be developed. There was no time or strength or appetite for filing on all the novel points laid step by step bare. Many of them were of practical value outside the subject in chief. The heart of the conception was a fruitful mother, with many branches for family tree of prolific, of fertile resource.

### *Filtering Rays*

Sometimes it transpires that words that pass current are in their essence misnomers. To speak of "filtering" color rays seems to me incorrect. These are not filtered through as flour for cake or cement for pavement. They are caused to turn this or that face of themselves. But then the actual facts are sometimes too many and subtle for single words or indeed single volumes to convey.

### *Six Primary Color Rays*

Did the eye in its long development decide to see but six primary colors? Was this all that any eye in its advancing stages could manage? Or was the limit to be found in conditions preordained? Was the eye thus developed because there were only six that were to be had for the seeing? It is true, that press the eye with more of the kind and it reneges. Blue with yellow makes not another color but comes back to the in-between: the green. Is that the fault of eye or something inherent to the physics of it?

The performance of the eye is very fine nonetheless. There are senses for which one could not by any stretch of the imagination create a playing scale. One can cite the sense of smell, for example, or the sense of taste in the tongue. There are further wave lengths or quanta. The eye endures no more. Or would they under no conditions be such as to be seen? As I said: try to join one of the color cycle with a skipped another, the result comes back to the color in between. The eye emphatically denies, renounces, and refuses to carry a new cause of color intricacy. In all conscience it has enough to do, with but six.

There are six primary colors and only six—a distinguished English physicist notwithstanding. These are known under the names of violet, blue, green, yellow, orange and red. They get their initiating force from a sling out of the Universe itself. *They are born not made.* Their wave lengths or quanta are set. They each have a distinct and separate entity. The proof is easy. For the film impregnated with the dye transmitting any one shuts out the rays of the other five. If it does not, the resulting color is not true. So a true primary color is one not admixed with any part of its neighbors in the color circle. A bit of carefully prepared transparent medium, superimposed over another, will conclusively show up any rays alien to it. So it happens that one can argue further that blue, green and red reduced the burden on the eye since green and red tend to yellow and red with blue to violet. To my way of thinking this is rather theoretical than true. A true yellow is hard to get in this way and so it is with the violet.

Nevertheless the argument has much to support it.

### *The Absoluteness of the Color a Cornerstone*

The six true primary spectral ray colors make an indisputably perfect cornerstone of this orderly art. Staying true to themselves they cannot be false either to the artist expressing through their means or his inspirations. *They are an absolute.*

Nothing alters them. A true spectral blue remains a true spectral blue, and so with the other five. Not so lucky are the competing fine arts. The true rays are an accountable, an immutable. They have been established by the laws of Creation and are bound within the woof of the eye itself. They furnish a *root* foundation used for a new and dependable understanding. For one created through their means of expression, between man and man.

I have heard a well-known lawyer say that with labor even the unbelievably intricate tumbles into its simple resolved solution. It has more than once happened to me in this particular work; when I have felt sorry for myself that where I had girded my loins for meeting what I had expected would be a difficult if not insuperable problem within the desired end, the door with unexpected generosity opened smoothly on hinges oiled. The strong one is sorry. He knew not of the *difficulties* met where the *easy* was expected. The high hurdle proved low; the low, high. The hewer of a path new could otherwise not have made the grade.

### *Production of Colored Light*

*The comparative ease with which colored light may be produced has been*



*the labor's joy.* It freed the originator for other problems not so easy. There lay before one only the determination as to *which transparent dye formulae would filter through the true spectral colors.* This was the primal, the sound start. This was arrived at. They are on record.

So active and eager have my activities been that true primary color-producing media may now be purchased from the current trade for a few cents each. The formulae are carefully filed and in existence. So, helped by public appreciation, the primary colors of the spectrum are now readily available for use to the fine art expression through light, or Nourathar.

#### *Light-Color All the Color There Is*

Colored light is all the color there is. It is through its courtesy that any color via dye or pigment, or leaf or flower is seen. That this emanating root is but six, that they are defined and of unchanging state is a resting pillow to the head. For the varying aspects of themselves, which they may and do show, have been a bewildering maze. Without a starting on solid ground, which the true primary spectral colors offer, the intricate secondary network they weave could well be, indeed has been, a perplexing labyrinth. In it the world has found itself irrationally uncomfortably lost, in a chronic state of makeshift.

#### *Orderliness for All Color*

We have shown a dependable orderliness made in shade. Through shade in white superimposed on the color, there is the orderly result of tint. The true primary colors give

a regulating base for the phenomenon as a whole. Indeed marks on paper may stand for them. This is a proper starting point for a notation to indicate the light color used. These are not as an alphabet created artificially, to which all people must subscribe before it can become current. They are a *natural*, orderly and accountable. They cannot be anything but themselves.

#### *A Marking for All Color*

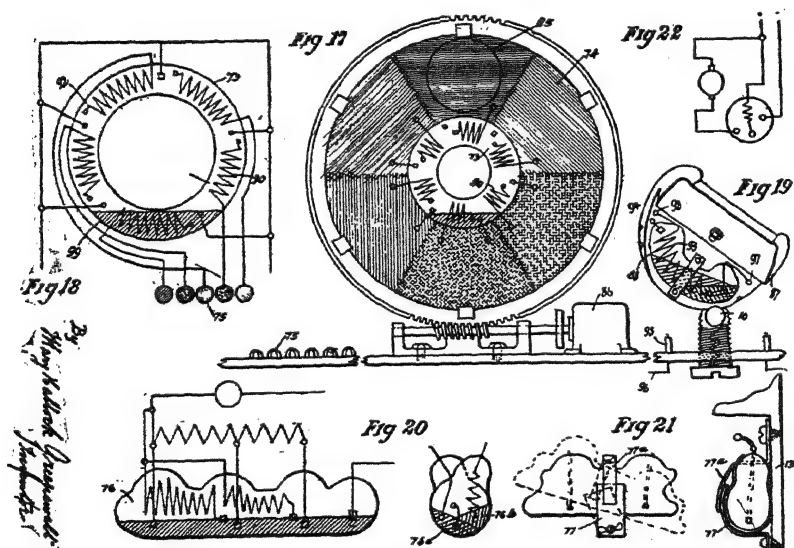
Dig and delve and unexpected consequences are brought to light. Why not a mark on paper to send you to market for buying just the right blue ribbon to tie up her bonny brown hair? As an ardent inventor I shut nothing out. A first aim by no means shuts out a secondary or tertiary result or further. In this case an unsought result looms as of possible cardinal use. For if a mark can stand truly for a true primary spectral color, combinations in the markings can go the one symbol further. These may well represent shades and tints and other necessities of sound recordability.

Nourathar uses the spectral ray itself. The necessities this art brought into view may well be extended to the field entirely alien to it: that of the secondary transmissions of itself in the general world of affairs, through dyes, through paint. To aim at a rigid definition of color by starting with the secondary transmissions of itself through dyes, through any means, is like attempting to cross a stream with total disregard of its bank.

#### *To Recapitulate Briefly*

1. The fine art of light-color playing uses the spectral ray itself, not any

- second-hand transmission of itself.
2. The extreme beauty of this manifestation makes a large end of the appeal.
  3. The six true primary colors of light are fixed and unchangeable. The dye formulae for producing these are on record and the means for transmitting them available.
  4. Nourathar uses these in a widespread appeal. It takes into account the wide range of the seeing field of vision.
  5. To produce the segregation of the color rays is a comparatively easy matter.
  6. The absolute nature of the true primary color ray makes a dependable start for recording color by marks on paper.
  7. This could be a proving tool for the marking of all color by symbols.
  8. The labor looking to a new fine art means of expression has brought unexpected vistas into view of use in the general world of affairs.



Feb. 6, 1934.

M. H. GREENWALT  
LIGHT COLOR INSTRUMENT  
Filed Jan. 29, 1927

1,945,638

6 Sheet-Sheet 6

A PATENT DRAWING OR SHEET OF SOME ARRANGEMENTS THAT CAN PROPERLY FIT IN WITH THE LAMP-HEAD UNIT. ANY MECHANICAL COUNTERPART IS TO BE UNDERSTOOD

## VIII

CHAPTER



### THE TRUE COLORS MINGLED IN A RATIO

**T**HOUGH the true spectral colors consort not amiably with that one once removed from them in the color circle, to add a new one to their number, they do commingle willingly with the neighbor next to them. The results are of great, yea enchanting, beauty. Blue, for example, mated with yellow, pouts backwardly to nothing but the green in between. Mix green with red, and some kind of yellow is the result. But blue tinged with something of the green next to it is another bird, and violets in your garden lean towards the red or bow obeisance to the blue.

I have briefly defined the matters at the core of that which constitutes a scale of light to the eye. I have spoken of its universal nature. I have pointed out the absolute standing of the six primary spectral colors; their being of an inborn nature inherently free of restriction or relation. The interrelation of scale with these has been touched on. But how now to control their promiscuous uniting and

blending! The blending of true spectral ray with other of the true. What is this particular measure? Between two colors can lie many degrees in their full intensity mingling. In fine art it does not do to arrive by accident at a result undesignedly attained, promptly lost, not again to be recovered. The *all* is risked when playing through a disorderly provision of the *any*. It is the controlled *gamut* that makes for dependable variety. And this is of importance even in the color unreduced by shade, unweakened in tint.

The outstanding physicist of colored light wrote: "One-third of blue mixed with two-thirds of green means nothing to me; please explain further."

It had occurred to me that this particular problem could be solved by the defined intermixing in given ratios of the transparent dye material itself; that which impregnated within a sheet before a light source showed them forth. That which

showed these primary colors forth in their trueness and purity.

It is to be remembered that I had arrived by effort and experimental choice at the true primaries and the reference was to these as clenched or intermixed. In fact, I having decided that by thirds was better than "by halves" was after that transparent dye would produce a definite combination in a *given ratio* of the means through which the primaries were gotten. In this way the exactness in the attaining of these could be extended still further into their mixtures. The field being considered was in what is known as *full intensity* color—color whose full value had not been impaired, vitiated or weakened by shade or tint of itself. In other words, the true spectral colors.

#### *Mixing the Dyes Before Impregnation*

The true full intensity primary colors had been nailed to their transparent dye posts. The formulae of their transmitting transparent dyes for impregnating the color filtering sheet had been formulated and labelled. Their production was available to the light-play artist.

I wrote back: "Please take a certain bulk, a quantity in any fitting measure of that transparent dye that yields the true blue, and mix this with two such quantities that will yield the true green, the result should be a mixture that features forth one blue ray to every two of green." This would be a green-blue that may well be called a tertiary: two of blue to one of green being the secondary or blue-green. Certainly, the particles of a formula, minute enough to cope with the exquisite fineness of the color ray will be found

to cope with an *even, smooth* combination of them. They will come with a oneness of interjointure for a dependable and recordable ratio to the eyes. Barring a possibility of hurdle in such control of any possible kind, a good start had been made in the right direction.

A combining of the full intensity primary colors in further ratios may be at first restricted in their use by this art by the number of the lamp heads used. Where a complete light-color palette may be the ultimate of one's desires, for the time being, a limitation as to the ratios made available may not be as handicapping as one might think. It is a great deal, it may be enough for a long time to come to be satisfied by this mixing in thirds.

#### *The Secondary and Tertiary*

In the above way was born the ability to arrive, at will, for two hues as a beginning, between each pair of the true full intensity primary colors. That was done for purposes of light-color play at this starting. The results are bound to have application further.

The light-color palette would then cover, enriched by combinations in thirds of: (1) The true color. (2) One-third of this color nuance with two-thirds of its next, in the color cycle, and (3) Two-thirds of the color and one-third of the next. For blue and its next door neighbor green, this could be briefly spoken of as a *true-blue*, blue-green, green-blue. It goes without saying that the extension would similarly cover all the six primaries of the color cycle.

Several samples of single colors, as first step to the combinations I asked for, were submitted to me. I dare-

say a physicist would see more than one possible margin of error. I banked on the artist painter's eye. Dealing as he does with color indirectly transmitted sharpens his eye for the root true. So the eye of a painter helped me confirm that which, in the leeway of choice, *hit the very middle* of the color point. It reminds me of a singer getting the very centre of the note, and not wobbling around it.

So, through mixing bulk of dyes, before impregnation, into the light filtering medium, was made a further step in helping the Nourathar artist to greater variety dependable for his play. Without it wandering from the way within a labyrinthine maze, confused, bewildered, perplexed would have continued to obtain. It is, indeed, a maddening "ring around a rosy" without such steering gear.

#### *Light-Color Filters Now Available*

The light-color filtering media for the following can now be bought from the trade. I do not give here the trade numbers. These change from time to time. The different selling concerns have each their own practice. The following hyphenated names represent the ratios in thirds we have been describing. In the desire for secrecy of big business, in jealousies of smaller businesses, the needed media can now, nevertheless, be had with little or no trouble.

Violet, Violet-Blue, Blue-Violet.

Blue, Blue-Green, Green-Blue.

Green, Green-Yellow, Yellow-Green.

Yellow, Yellow-Orange, Orange-Yellow.

Orange, Orange-Red, Red-Orange.

Red, Red-Violet, Violet-Red.

The future light-color play artis may demand still finer ratios. The public is sure to get more color-conscious and knowing with this start already made and at hand for immediate use. Should he, the public, grow in this direction, the finer ratios in fourths, fifths or further have had the way made plain and easy for them. Definite ratios should be abided by, for many, many reasons. Some of them are plainly obvious. Others are important though not so plain.

#### *Proven by Actual Practice*

*Actual practice* through the instrument, with the light-color palette described, proves the immensity, the well-nigh indispensability of its worth. The results were vastly more complete than even the initiative anticipated. The accidents of peradventure were eliminated. There was none of the repetition of color, where nuance *new* was asked for.

Only experience through actual practice brings the full realization of how these secondaries and tertiaries make new beauties. Nor just how valiantly they take one away from the-just-coming-again and no change in color atmosphere. Once experienced, it is very hard to do without their aid. The margin of difference is very great. With their dependable help the light-color palette gets infinitely more comprehensive. The lacking, the haphazard is curtailed. With them the task has an orderlied base still further extended. Please note also that only by the flexible handling, allowed only by manipulated ray color, could this instant variety be set forth to the eyes. Only mobile color unfixed in matter could do it.

Let me repeat here that the finer the medium an art uses, the more exquisitely subtle its possible behavior and result. And, too, the more penetrating its infiltration to within the body tissues. Due to these two facts alone the more defined should be the manufactured or made means to its use.

Here we have still another kind of scaling. It is one of a new form of progressive measurement. It is that of mixing the full intensity spectral colors themselves in definite ratios, such as are determined precisely. We have already done this by thirds. It is well not to leave a work accomplished by halves. By thirds, the formulae have been filed, the trade numbers through which they may be bought at hand, but a few cents will bring the needed transparent sheet. If the lamp numbers allow, it is a simple matter to mix the dyes for true color in two equal parts instead of three.

By halves can then follow as a matter of course. The integral clenchings can be pursued into ratios finer still by quarters, fifths, sixths, sevenths, eighths, ninths or tenths; indeed, by still further.

It is, of course, a question of unknown answer just what the tolerance of the eye will call feasible or right in such color "splitting of hairs." How far will the practical use want it to go? At all events a very successful move has been made in the right direction. It has been tested through the items involved—by their use—by their part in practice. The argument for extending the innovation is unanswerable. It could have its value in the world of stuffs and objects as an obvious by-product.

I like the use of the word "clenched" for "mixed" in the above. I cannot tell you why. The amalgamation of color pigment with color pigment may be more intricate for the describing than I am able to make it. Vaguely I know how in the hands of a modern physicist "fasciends" and "operands" may well bring in their own words and ways for the posing.

In this affair of comingling spectral rays it is a mixing that cannot be of a uniting into a one mass that is promiscuous. The atoms, the word is used in a general sense, are incorporated closely, even if but juxtaposed.

In the carrying out further of the matter with which this chapter deals, I am reminded of a fairy story of my early childhood days. It told of a Prince, who among the tasks he had to see through, in order to get his Princess, had one like unto the above in its difficulties. This was no less than the separating of myriads of unlike grains, the individual kernels of which were of a promiscuous, a general mixing together. Large bags of a quantity held these.

On his way he had befriended an ant. He burnt the right hair and forth came this one that cherished the kind regard. What more natural than for this "ant" general to call in its ant cohorts for the task. In short order this very specific toil brought the result.

Call in your ants, oh! world of action to the improvements laid down above. The results are beyond cavil worth while.

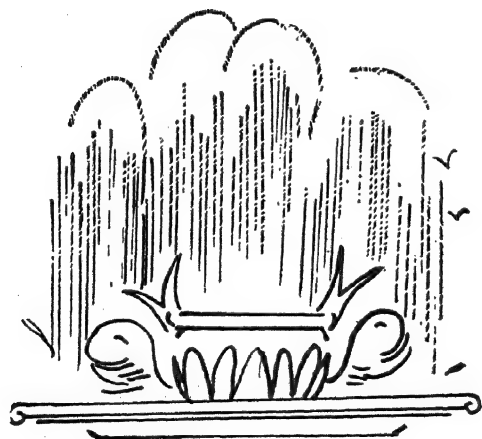
This form of scaling stands on a rock bottom, on an *absolute* in its nature. Only the tools are called upon to do their best, to be their best.

At their highest the implements, the dyes, etc., must approximate the height in the value return. The materials used, the technique only need refinement, if necessary, for the procedures to click the proper color mixings, no matter how or where used or through which of the intermediates.

Here are the bags! Here the grains for the multiplied, the prolific potential! And think of the Princess to be had in consequence!

#### *A Brief Recapitulation*

1. A mixing of the true full intensity primary colors of the spectrum materially widens the light-color palette in light-color playing.
2. This has been attained in defined ratios that might be called the secondary and tertiary.
3. The future may call for still finer ratios.
4. Actual practice through the instrument by their means makes plain their indispensable importance.
5. These have been attained by mixing in the transparent dyes before impregnation of these into the color-light filtering sheet.
6. Their extension into still finer ratios will yield its return.
7. The use could well have its extension into the general world of color no matter where used or how found.



## IX

CHAPTER



### SECONDARY AND TERTIARY COLORS INTERMIXED

HER hat was most fetching. Flat leaves of a lovely pink gave it finish. The dress needed a touch of that self-same tint. "You will have a hard time matching it," I said. "Oh! no," she countered, "this is *this year's pink*; it will be found everywhere." Such is the dye world at large today! And everywhere, indeed, this pink probably would be found on kitchen utensil and finger-nail polish. I have heard artist painters complain that even their tubes of paint were not free of the mongrel condition.

A master dyer arrives at a certain tint. This could easily have happened semi-accidentally. Or it could have been due to hidden exigencies confronting the purveyors of the pigment wholesale. We have a lot of this. It must be sold. So they decree. Everyone must bow. No matter how! Much is likely to emerge *plastered* with it.

The dye world could well learn from the fine art of light-color playing. Nuances subtle past belief ranging from end to end of color

possibilities are produced, *at will*, and *on the instant* through the *defined* arrangements, some of which have been here outlined. It isn't with this art a matter of "How did I get it?" It is a matter of knowing definably and yea, recordably, how and when it was gotten. The artist, at least, cannot, must not be dictated to by accidents of trade. His will and capacity cannot be ground under the feet of: "We have a bulk of this particular dye pigment to get rid of. Take it or nothing. To hell with you and your art."

What has been done through this art of Nourathar could well teach the mercantile color world much. Color is now a maze. It makes part of well-nigh all the activities—of "rich man, poor man, beggarman and thief, not to mention merchant and chief." No one will deny its haphazard use. The tones, accidentally arrived at, are applied at random in the general world of "business." Here the mystic labyrinth has met its match. Fine art has again pointed the way.



Color's showings, indeed, are "hit or miss" even in nature. Who will not say that a chancing dictates the colors of a sunset, of passing cloud? Light color is the root of all color. It is, indeed, all of it there is. In total darkness there is none. To make order where disorder now reigns one must begin with the source, with light itself. There lies the dependable measure. Having done this the range is an entirely new color world. It is quite certain that mind can make difference over nature. The above surely makes this plain.

#### *Color Push Through Light-Color Play*

Light-color play creates need for a range, *with definition*. Through the provisions of the Sarabet console we have described the articles for producing the true primary spectral colors, their secondaries and tertiaries. *These may be intermixed in their turn at will*. And this without risk of chance. The results are unbelievably surprising, in a beauty entirely new. It takes one who has practiced the art to know how superlative are the results. A great man once breathed, he hoped to fade out of life as insensibly and beautifully as the black and white shadings graded off in a Japanese print. If so to *leave* life, then to come into it might well be ruby wedded through, bit by bit by emerald, emerald by sapphire. But not accidental. Oh! no. Please, no. Played.

#### *Defining Color Along Its Route Entire*

Even without practice through its means, it will be realized that in the realm of full intensity color alone, not its shades or tints, a defined color mixing *all along the road* only

can cover the way in its entirety and with certainty. Comparatively speaking, no neglected parts remain—no gaps make color lack, color poverty, no feature of color as a whole is unrepresented. There is *variety* where otherwise *duplication only would exist*. The further intermixing of color already definitely mingled will cover a long stretch along the way. It will traverse much of the advancing needed by public passage.

And the light-color play artist notes at once the difference between having his instrument so equipped or so neglected. In the color orchestra *all the strings are then there*. The need might be to intermix the secondary blue-green with the tertiary red-orange. If so, there it is. Did you not have these, the poverty would be handicapping to the full range of *expression* also. There would be missing feelings to the color soul as this is being portrayed.

#### *The Chief Factors*

I think it is important in this to leave no chance to misunderstanding. There is not one but a variety of directions that must be traversed if a definite recordable measure for *color of every kind* and use is to be had—of stains, and dyes and pigments. (1) This can but be done, first, through light which is the root source of all color. (2) The true full intensity primary colors must be firmly confirmed. (3) The mixing of these in definite ratios comes next. (4) After that the intermixing of any of the factors so far mentioned. (5) Only then can come the *measure of shades* for any of these. (6) These, then, are to be followed by their tints.

A good start for this laying on of orderly hands for general use in the world of trade has been made. It came, to be sure, as a secondary result, to a primal purpose. But, then, what could better point a way than catering to a visioning made within ultra-fineness of sense. Has anything else the number to match number of color as the septillion cells housed within a single human brain? In the infinitude of mood interactions these bring about? For a "this" to also at the same time beget a "that"? So the world helps itself. Toil and labor bring their own cumulation of a new result. In this case Nourathar has stretched a tent far and wide beyond itself.

I grant you that many other factors are necessary to a laboratory clinching of a defined general color labelling. The chief pointings lie in the above. To attempt to label a color nuance on paper via any other route such as opaque dyes is inadequate, if not impossible. Color matching has been broached via its appearance in stuffs. That is not color's true original self. It is not taking the right leading road. This fact alone throws out any such claims as spurious. These could well have been suggested through needs early followed by this art and mistakingly interpreted, wrongfully applied.

The accidental may do for coloring toothbrush handle or kitchen ladle but fine art! . . . To play on the emotions of man is a task not so amiable. It is surrounded with high walls and ramparts. To scale these means a lifetime's effort. The risk may be a painful loss of all one holds dear. Nothing must be left to accident. Nourathar requires a defined scale, precise measurements as tools.

It cannot be lasting if "writ in water." The recordable concrete is its very life. And so the variousnesses needed for matching or suggesting through light color the variousnesses held in human feeling may be truly met. Arrived at via this road, the result may spread into the world of affairs. In these days of anonymity working under more or less suffocating blankets, woven under names of large aggregations of capital, hidden hands take readily, without please or thank you, what another has created. The influence of this labor is already widely at work. That much cannot be gainsaid. This is especially so within the world of colored light. The step described is a right one towards getting an absolute measure for color also indirectly produced via stuffs that are dyed. The recordability of these by marks on paper logically follows.

### *Recapitulation*

1. The use of color in general is haphazard.
2. Color for best spectral result should be evenly represented all along its route.
3. The chief factors have been pointed out and incorporated for use by Nourathar.
4. A good start has been made for orderliness and recordability in all color activities.
5. To intermix in a ratio colors already comingled in ratios will cover much of the road.
6. To make them fit for laboratory experiment and influence is more than halfway accomplished.
7. In Nourathar there is a positive need for this providing as a matter of trade, of money gain.

## X CHAPTER

# THE NOURALIONS

THE big sun gives all the color there is out-of-doors. Within, miniature stars must take its place. We will call these *Nouralions* since it is through these that *Nourathar* is made. (Nour: light, Athar: essence of.) Outside, the great ray quantity is launched as a *one*. Inside its substitutes (the light sources) are ranged progressively in varying numbers. An increase of these fits the featuring of widened space. From the fronting of the vision around to the back, this extending of the light play medium effects gives an added tool of dynamic value. Ability to spread at will the glory of the color, *more or less* towards surrounding the eyes or field of vision; and being able to cause it to recede towards the focal point in front is of the many ways, a powerful means for the waxing or waning in the expression made. The nature of space itself adds to the power.

In this apportioning of the artificial light sources to an entirely new role it comes about that a variety of their kinds may be found useful. Many may be of low power, others of high. Some may be bare of anything but the white light they furnish; others are provided with considerable intricacy and fineness in their arrangements. In other words, the *Nouralions* may be simple; they may be complex. Their positions within and throughout the space determine where the various forms of these light sources shall find place. They are not interchangeable. For this kind of potential, these. For other uses, those. All are valuable to the one end sought. A cumulation in increase or decumulation in decrease of their number is of value even when the range of space only is under consideration. There are many other potentials to be considered connected with their provisionings.

### *The Light Sources, the Mouths of the Instrument*

The light sources are the mouths of the Sarabet; it is through them that the console can be made to speak. I am reminded of an incident.

I was looking after the last arrangements of an installation of one of my light-color play instruments. For one reason and another the electric current fed in *with a delayed leisure* to the filament of a unit placed far back in the auditorium. It failed to respond promptly with its shine. It took me some time to become aware of the wide open mouth of the electrician. "Do you know what you said?" he finally remarked. "You said you wondered why the lamp 'spoke' so slowly." Light used in this way had become to mean to me a means of expression. It would not have occurred to me otherwise to deliver myself regarding the time lag. Lag was a point of consideration of high importance in expression, made within timing nice. But this, that we have called "speaking," is not done by one lamp alone but by an arrangement of many lamps. Each or any possible number of these are given individual parts as actors for the play.

### *Lamp Arrangements a System*

The number, kind, and placing of the lamps follow a system (see my patent No. 1,793,284). This system has been carefully arrived at. It has been well thought out by myself and used for the fine art purpose in view. It should be followed, for every feature is of importance in the adding of this new beauty to the world.

### *Entire Space the Arena*

The conception takes in the view-

point that the entire space featured may be taken in, as scope of the light-color play. The cumulation may include as its province the whole that is visible to the eye. The art makes no provision for pictures. Cloud or two, tree or shape is no integral part of it. Forms copied or conventionalized are not of its essentials. It is artificial light used for its results alone. The outcome sought is to be realized through its potentials. This is regardless of, or additional to, the many activities it may be made to accompany. It is light pure and simple used as an *artificial means of expression* in its own new and complete way. There is no objection to inclusion of figure or figurant, providing not too much is lost on either side.

### *The Light Sources the Actors in Chief*

The light sources are the chief actors in this play. They range in their importance. Quality to the front, their "hoi polloi" to the rear. It is these latter that may in part be bare of everything but their capacity to shed the white of their light at highest climaxes. They may so clothe the ceiling, the walls, yes, the floor, *everything* for a maximum reverberation. The play is then as the finest voice of the greatest singers seems to come to one from everywhere. The light sources in chief cannot be dismissed with a word. The general fanfare made by a high climax of white universally shed is the apogee of the light play. Even a color climax does not reach its height till it is lost in the *full brightness of white*.

### *Power of the Chief Sources of Light*

The chief sources of light are of

very high power. For more than one reason the eyes may not look directly into them. Their light must come indirectly. The higher the power of the lamp the greater the maximum of its brightness and the greater the quantity and finer the quality of its color rays shown. These "firsts" have the front seats of the mighty. They are at the very front of the focal range. With these a reflector is an essential. Through its shape it could well "play into the hands" of the auditorium as a whole. We have given the color of the light and the filtering of its rays consideration in Chapters VI, VII and VIII. This color phase of the light is of an essence rare. It is expensive. It costs money to get. It cannot be wasted. It cannot be allowed to fritter itself away to purposes lost. It is docilely conductible. To this end the character of the reflector is of importance. The *lumen outgive* must be maintained and given forth at its best.

### *The Reflector*

This backing to the light source is not, properly speaking, a "reflector." It rather deflects. Rays moving back are by it caused to come forwards. It could be parabolic or hyperbolic. It may allow a variety of considerations. It can sharpen the result or broaden it. It can help the intensity of the color or weaken it. Many are its possible uses. All can be valuable, their particular purpose considered. A spot of color may have its uses. A reflector may, indeed, well play in with the curve of the wall which it confronts. This is one of the possible considerations. A neutral silver-grey metal used in its manufacture

has here also its obvious uses. Certainly such could be its inner coating. The least absorption of the rays the better.

### *Light Tightness in the Reflector Parts*

There is more than one spot where the white of the light may leak out between reflector parts. These must be carefully overlooked to prevent this. This alone is a source of spoiling the results expected from an installation. In this shutting off any escape of white light from between the reflector parts, there would seem to be created an impasse, since simultaneously heat should be allowed to escape.

### *Allowance for Escape of Heat*

High-power bulbs create considerable heat. It is said that those color rays, blocked from coming through the filter, remain behind in the form of heat. This is also a point entangled within a final understanding of what light really is. However, that may be, all heat should, as much as is possible, have its outlet. Openings for this purpose may be so hooded as to lead back the rays, while letting out the heat. Light absorbing black can help, but not in the reflector itself. The slap-dash, the haphazard has been eliminated by the fine art. Indeed the careless, the accidental, the unconsidered in even reflectors carries its dating testimonies.

It is fortunate that the electric bulb's glass housing requires no ventilation. There, where the lamp socket meets the reflector, where the electric line leads in, have openings fruitful as white light escape points. These are to be looked after. It is

possible to stop the light escape while providing ventilation for the heat. In its way it is a comparatively easy matter. It needs the attention.

### *Color Filters and Frames*

The gelatine sheet, as base for the transparent dyes filtering through the particular light color wanted, leaves much to be desired. It is fragile. It is easily damaged. It may be destroyed by heat. Altogether, it creates causes for frequent changing. Nevertheless, I still think it is the best available for the purpose; certainly up to this dating. It costs little. Should these be used, simple frames which allow their insertion are available and, if not, are readily made. They are, in their turn, slipped into a grooving provided for the purpose at front edge of the reflector. Many such frames may be held in readiness for change in front of a lamp, since these may be called for, through the matter of expense saving if nothing else. Not even a stopper to a hot-water bottle needs more careful consideration than watching out for white light *leakage*. These more or less primitive arrangements for filter placing may easily be improved upon. They are obvious to even the untalented engineering mind.

### *The Space Lamp Units Need*

As long as lamp-head units are not considered as honored guests, the space they occupy will be awarded them begrudgingly. This is not because they may not be made a beautiful part of the architectural arrangements as a whole. They may be made a beautiful addition to these. Rather perhaps it could be

due to their number. A plural number of filters moved in front of the one lamp have this space saving as well as other reasons to make them logical.

### *Color Filters Moved by Remote Control*

A well-known authority has said that no better examples of good English may be found than in patent specifications. For those who have had experience the statement leaves no room for wonder. Such specifications have to stick closely to the point. They are brief. Their very form is such as to convey the fact in a way both keen and presentable.

I own two United States letters patents on lamp-head units with arrangements by means of which several color filters may be moved before them, at will, by remote control. This control may be a part of the console. In the one: Patent No. 1,654,873, Means for Controlling Light, the several filters are movable by arms which may be raised or dropped. This unit has been widely manufactured, widely used.

The other is in the form of a color wheel, whose sectors fit across a reflector with sector-shaped opening. The patent on this issued to me is No. 1,820,899 for Lighting Appliance. The specifications and claims of these patents give a great deal it would be difficult to restate here. I beg those considering installations to look them over. Detail measurements are not included in these drawings and specifications, since these could limit a patent's scope.

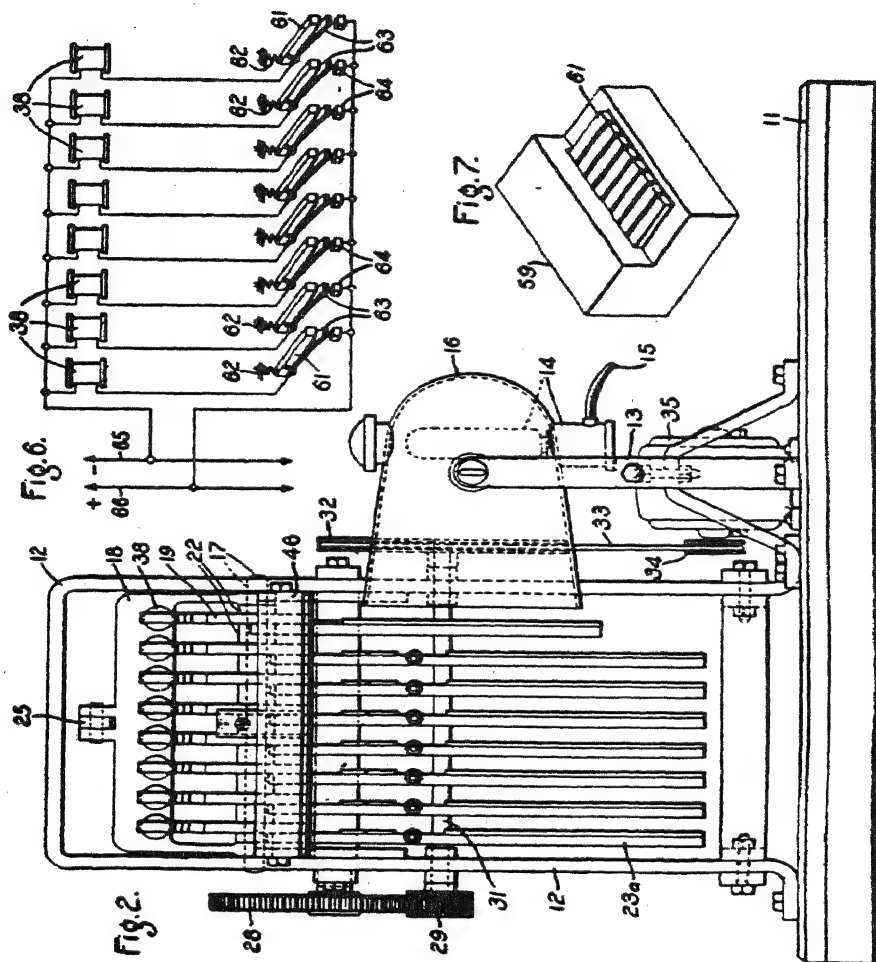
Both kinds of development may be used in conjunction with the one installation. The availability of the color is *the* consideration.

**Jan. 3, 1928.**

**M. H. GREENEWALT**  
**MEANS FOR CONTROLLING LIGHT**

Filed Oct. 24. 1923

5 Sheets-Sheet 2



**WITNESSES:**

R. J. Fitzgerald  
R. J. Butler.

INVENTOR  
Mary Hallock Greenewalt.

BY H. M. Bichel  
ATTORNEY

PATENT DRAWING GIVING FURTHER DETAILS FOR  
MOVING COLOR ARMS AT WILL IN FRONT OF A  
LAMP OPENING BY REMOTE CONTROL

### *Size of Sector Reflector with Color Wheel*

The size of the lamp bulb conditions both the nose length behind of the reflector, and the diameter of the color wheel to the front. This is obviously the initial size or dimension for the starting. It conditions the final size of the unit as a whole. A 500-watt bulb with concentrated filament makes for a unit entire, sufficiently compact. The sector shape of the reflector opening allows of five color filters of the same size and shape arranged as a color wheel. By remote control from the console through a small motor any of these may be moved in front of the lamp opening at will. Reduction in the speed of the motor would, in all probability, be needed to allow of a movement of the filter sufficiently slow. The starting or stopping the movement of the motor may be done through a button at the console. However, since light play is a matter of the darknesses and brightnesses used chiefly, I think the speed regulating of the motor is a negligible matter.

It is the smallness of this reflector opening that demands a lengthened form to the reflector towards the back. This has taken a careful figuring and should not be allowed to be lost. It is such as to lead the backward-going rays forwards without blocking.

Resistance control of the speed of the motor may have its finer uses but for various reasons this would be a minor matter.

Since I have mentioned using a 500-watt bulb in a scaling tuned to 1500-watt units, I will say that a dividing of the 1500-watt quantity

of the one lamp into three of a 500-watt capacity gives certain advantages. These advantages may well offset the current loss to the color and the scale, through the heating of three filaments instead of the one. Through placings of three lamps instead of one a wider distribution of a primary full intensity color can be gotten.

### *Signalling Color Filter Position*

These high-power light sources are turned away from the console and performer. It is of high importance to be able to count on the color wanted, at the instant of its need, for a certain result. Indeed it does no harm to know *before* energizing the source just what color it will return. Arrangements by which the color filter signals its position have been provided. Little pilot lights of the color of the filter whose position it signals complete this feature. In actual practice this feature of signalling the filter at the moment in place is of almost indispensable use.

Five color sections to a wheel make for a considerably smaller unit than six. This need be no handicap. Certain colors being brighter can be less numerous. One wheel can have, let us say, a yellow omitted by another for orange. Nothing may be left to chance.

### *Advantages of the Multiple Color Unit*

In these multiple color units there is: (1) A saving in duplication of lamp parts. (2) Saving in the space occupied. (3) Saving in expense. (4) And in chief the *ability to get differing colors from the self-same point of ray departure*. Other points will become patent on practice.



Aug. 25, 1931.

M. H. GREENEWALT

1,820,899

LIGHTING APPLIANCE

Original Filed April 10, 1924 3 Sheets-Sheet 2

Fig. 2.

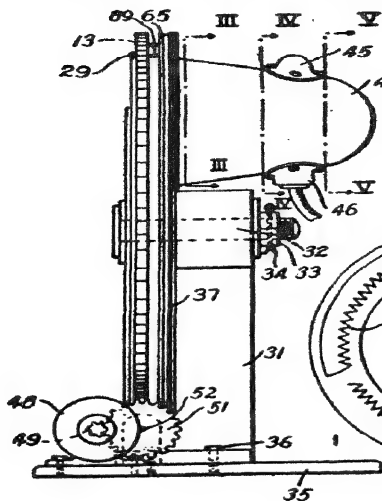


Fig. 8.

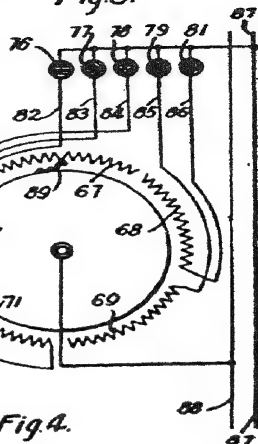


Fig. 3.

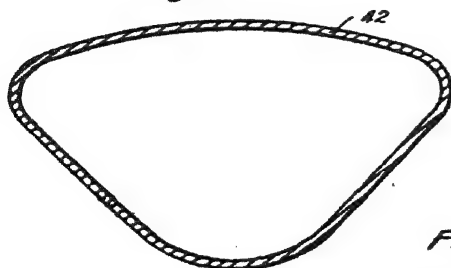


Fig. 4.

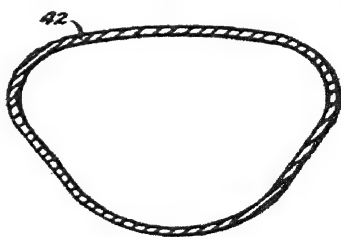
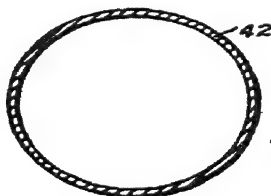


Fig. 5.



WITNESSES:

*A. L. Jeffery*

*R. J. Butler*

INVENTOR

*Mary Hallock Greenewalt*

BY *J. M. Bichel*  
ATTORNEY

DRAWING FROM A PATENT ISSUED TO THE AUTHOR SHOWING DEVICE FOR SIGNALLING TO THE CONSOLE THE POSITION IN FRONT OF THE LAMP OPENING OF ANY ONE OF A PLURAL NUMBER OF COLOR FILTERS. THE RELATIVE DISTANCE ACROSS THE REFLECTOR OPENING IS ALSO DENOTED

A TRIANGULOID REFLECTOR FOR SECTORED COLOR WHEEL AND MOTOR WITH SIGNALLING OF COLOR POSITION.

### *Variety in the Conditions*

So in the lamp system as a whole: some may be innocent of both reflector and filter—some manned with one filter to the lamp—some with more than one. It is the vision as to the scope of the art that governs.

### *Moving of Filters by Wireless*

The young engineer, enamored of recent innovations, will suggest the possibility of moving filters remotely via wireless. He is in error. Fine art is a matter of *the human equation*. Anything outside of this is *by the way*. It counts neither one way or the other. The motive power of fine art is of the within-the-body citadel. The kind of the mechanics is to be viewed only in that light. Indeed the flavor of the personal touch may count more than vastness. Anything put to use outside of these is by the way. It must conform to that more portent than it.

### *The Focussing Lens*

A focussing lens fronting a lamp is not shut out by the general arrangements. (1) It makes possible a uniform spread over a wider area varying according to the distance. (2) These may well be of use for unsaturating the color or mentoring any general color quantity: turn red into rose, blue into forget-me-not or blue-bell, green of the leaves in summer to leaves of spring. (3) It helps the directing of rays over longer distances. In this matter of matching fineness in human feeling through adroit and artful moves through light, any possible artifice may be turned to. And lamps may be near, lamps may be far. These can also conceivably give an interesting detail of contrast within a field covered at the moment by another color. Within such fields spots of luscious

color are not shut out. They could well carry a decorative worth.

### *Vapor-Filled Lamps*

In one of my early demonstrations, it was in a vaudeville house in 1916, I used a mercury vapor lamp to help out my blue. Violet rays are more or less negligible in any but the highest power lamp. I remember early mentioning to the members of the Illuminating Engineers' Society the possibility of colored vapors being of some unsuspected use in light-color play production.

### *Minor Details*

Standing lamps will need supports. These, too, will suit the purpose and the position. Some stands may be low, others higher. Such may be adjustable for causing the rays to impinge to a nicety, on the space they are best fitted to feature.

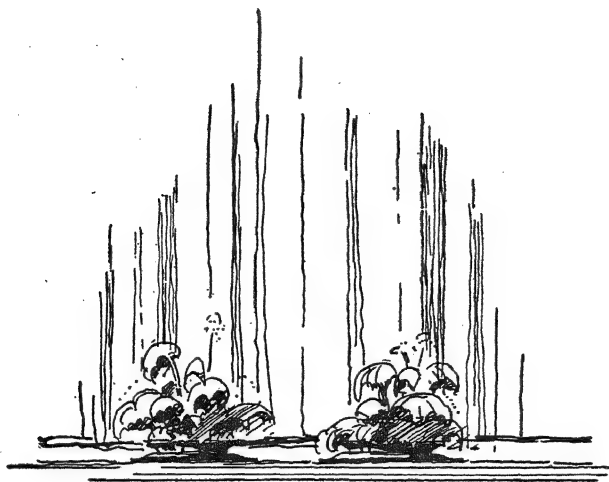
Plugs in the auditorium construction should have place for plugging the lamps in. These allow moving the lamps to a position considered more suitable. They allow putting lamps away for safe keeping. What is now available does not shut out further improvements. Any expedient may be resorted to, to help the objective that has been defined.

### *The State of the Apparatus*

Every broad fundamental has been provided. The work of initiating a vision so large has been hard and long. It has entailed conceiving, creating, developing, patenting and exploiting. It is little to demand in return that auditoriums install, that artists arise to make known through these means the colors of life within them. The absolute still beckons, as the light of the stars wink one everlastingly forwards, from afar.

The lamp factors, as a whole, have been briefly mentioned above.

## XI CHAPTER



### LAMPS HIDDEN? LAMPS SEEN?

**W**ERE ears hidden within skulls would donkey or man look handsome? I think not. What think you? Logic underlies aesthetics. The reasoning sense supports conclusions for beauty. Ratiocination does much to determine the right in the *look*, the appearance of the matter even as it controls in the exact sciences. It was the French, great artists as they are, who *reasoned* that so important a part as the motor in the automobile should not be hidden. The proper caper (?) they argued was to feature it. So smack in front it went and smack in front it should be. Before that the auto cars were really the "horseless"—shafts lopped off—a carriage minus any visible ways for pull. Manifestly, there was something wrong there.

Reasoning can take place, can be exercised as regards the featuring of the Nouralions of the light-color play instrument as part of the visible interior. It is difficult to hide anything. The logic of its being will out

no matter what. It is fortunate that so far as the lamp units are concerned such is not to be regretted. The direction of the ray emanation will make itself felt. It will in every case "give away" the hiding place of the lamp. This will show the position of the source. The source of the color stream may even be a help to the general effect. So there is little cause for hiding these units, providing they look not ugly to the eyes.

The aim for an unconscious effect of light to the eyes has in this become highly conscious. The unawareness is now held in the fine art effect on the perceiver.

Since the purpose of the Nouralions is so high and distinguished, why not boldly feature them? Indeed the lamp housing itself could be of a beauty added to the whole character of the interior.

Rows of low-power lamps hidden behind a metal trough, as food for pigs is disposed of, belong to the brain of the electrical engineer. But

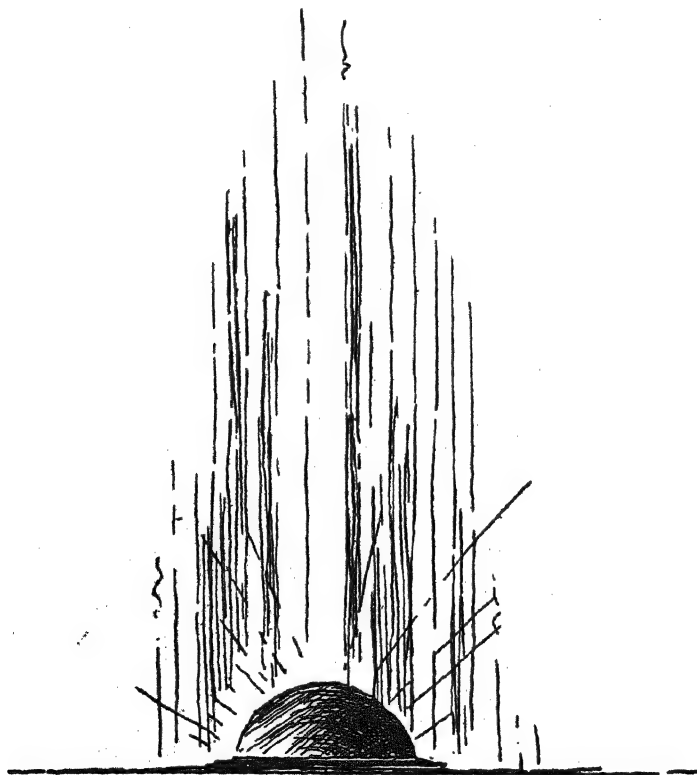
after all it is at these the obtruding electric companies first ate. Such troughs do not belong to my brain. It was an interpretation imposed on the art, not done by the expert.

It matters not so much what the hiding arrangement is for lamps placed behind the audience, should any be used. The problem is a nice one for architect and builder both.

High-power lamp units, distributed separately, allow of interesting housing acceptable to the eyes as part of the interior as a whole. These can easily be turned into decorative spots in harmony, in keeping; a charming addition to the auditorium scene as a whole. Then, too, the logical furnishings of the place, whether altar,

pulpit, chair or table, may well screen the unit if insistence is maintained on this. Higher up the walls, charming niches suitably screened may well be devised. High-power lamps, majestic in their color-give and dynamic potential, are needed essentials. Why not well and bravely feature their presence? They are worth enthroning. Their high dignity could well be accented.

To sum up: Once the interior, its character and arrangement is decided on, the logic of the scene as a whole and its furnishings allows of both—lamps perceived as present to be played on and lamp sources hidden.



## XII

CHAPTER

# THE LIGHT DARKNESS AND BRIGHTNESS SCALE IN PARTICULAR

**M**AN is the Lord's choicest work. Next to that comes my rheostat." It has been the saving grace throughout this whole huge labor that I could still hold on to a sense of humor. So, it was with a laugh, as above, on my lips that I opened my lecture on my scale of light increments of least visibility before the Illuminating Engineers' Society in Philadelphia, Pa., at a date as early I think as 1920, if not earlier.

I was showing my second making of a manufactured unit. It was the scale means on and through which the gradations of a light darkness and brightness scale could be played at will. It was, in its improved framework, a beautiful object to look at. It was so shapely and bonny to see in itself alone though unmounted, that I had placed the panel against a framework of shirred or draped black velvet.

Manufacturing parts may have their great beauty, too. This is especially so if they are logically best for the use to which they are to be put. They then acquire that perfection of form which, in itself alone, can also satisfy the aesthetic nature. They are as my father once said of my eyebrows, "the right thing for the right place." The very

outward appearance of such articles for use and trade denotes the harmonious combination of diverse elements in a unity, for the attainment of new and it may be high ends. A noted painter has said to me that beautiful movement in a being denotes beauty in its figure, hidden within the clothing as this is.

It was a rheostat. That was its broad and generic name. It accomplished its ends through control and regulation of electric current strength. A check made, in other words, of the ohmic capacities within electric wires to a specific end. Conceivably, mankind may in the future devise new ways of light making with their own variety of directing restraint. Such utilized to the objective of which I speak would still be covered by my United States letters patent claims which are broad in their canopying reach or blanketting. The purpose was so utterly novel which brought the patent specifications forth. The patent is No. 1,357,773.

So there it was. Its wires were so shapely in their progression, as are those of a harp. The copper segments, surmounting a broad plate of slate, stood like brightly dressed soldiers ready to perform a duty new

and more beautiful than that of killing people via powder or gas. These were there to bring out new and unsuspected beauties, not loathsome vilenesses. Please note that the very use of a slab of slate as rheostat base denotes the early date of the invention. Manufactured insulating had not yet gained a run in use.

The laboratory value of this unit, in addition to its first purpose, had not then occurred to me. That it could help create an absolute measure for all color shade, all color tint only loomed later as a by-product result. Playing light in a manner to prod miracles in human feeling, while suiting the majesty of the human eye, was its only immediate and first objective. The other came hand in hand with it as a valued bonus. So, as it transpired, it has had its further uses for helping to put in general order one of Creation's most beautiful works: color.

The Illuminating Engineers saw before them, in the flesh as it were, the two hundred and sixty-seven (267) least degrees of visibility of darkness and brightness yielded by one 1500-watt incandescent electric bulb. *This they saw for the first time.* I had managed a crude unit got together before practically by hand demonstrated publicly by me in September, 1919. The playing part of the scale made up of flexibly moving parts they saw also. The unit itself was not mounted for use or used on this occasion of the lecture of which I speak.

The figures needed for carrying out this light scale had been given by me to the internationally known, large electric company that had carried them out in this made unit. The slab of slate two inches thick, which

they used for the base, carries its own historic and other interest. It was a piece of material difficult for this particular handling. To bore two hundred and sixty-seven holes close together within it was no little task of itself alone.

"You see," said the engineer that had been put in charge, "I did not exactly follow your figures." Neither had he. He, perhaps, did his best since at the time the material of slate seemed the only ready one available for the purpose. It furthered the move in the right direction, even though the glibness of said engineer showed the lack in know- ingness. There can be no slouchiness in carrying out a plotting of the sort.

One point comes out stark and clear that even at that dating the electric engineer saw not the heart of the innovation: that it was a matter of least increments of visibility, so much, no less, no more. Whether a continued hodgepodge was the result counted not with him. It had not occurred to him that just this carefully computed showed and carried out an aim entirely new.

The way he did it was a start and as such had its place. Please compare these slate-mounted wires with those on the insulating material later made.

The heart of the mechanical problem, which in so large a way underlay the use of light and its color as a means of orderly recordable expression, had been brought about. The unit I showed the Illuminating Engineers around this date of 1919-20 was the second making of it. This was shown unmounted and without its co-operating adjuncts. Such would entail electrical connection of a 1500-watt incandescent bulb, the

framing, the incoming power and so forth.

With these adjuncts it became a scaling of light according to the demands in that line of the human eye. Please note the cut of it mounted. In this cut the entering in of the color feature is plainly shown. It was a large wheel with color filtering segments. This color accessory was first pulled around by a cord coming to the seated player. This was rapidly followed by the tripping of color arms by solenoid control.

A contact-making shoe made the electrical rings around with the light at every one of the segments. It was the means for *timing* to a nicety that gradation of light wanted at the moment.

So then, here was the novelty. It was an innovation. It was not a little one. It made possible the purveying of any shade of darkness or brightness which the eye was capable of perceiving, from the absolute of darkness up and *in any timing*, up to the point that this scale carried them out.

It is not impossible that this 1500-watt capacity will always constitute the *beginning*, the initiating of the light scale measure on the console. A good reason for this supposition is furnished by no less a factor than the reach of the human arm. Given a playing scale segment eleven-hundredths of an inch wide, two hundred and sixty-seven of these exhaust the one-arm reach. The unit laid these out for careful movement onto *each* and *any point* and within reach of the full stretch of the arm. That this, the originating reason back of the invention, carried a second worth along with it, only

proves the broad base on which the conception stands and stood.

It was measure in black and white of the light and, as such, made measure for shade and tint of color, too. Add the scale points in the white of the light to scale of color and the latter's tints are the result. The darkness and brightness yields the shades.

The electric potential going into the filament progressively added to and, in right wire apportioned capacities, *progressively increased the heating of the electric bulb filament. This was caused in its turn to deliver such added increases in that luminosity that spelt least degrees of brightness to the human eye.*

Eleven-hundredths of an inch is a narrow segment. It does, nevertheless, allow the hand to cause the contact-making member to pause at every one of these, if need be, as well as at *any of them*. Within these provisions lay not one but two meetings up with causes. They are (1) part of the body's eye and (2) the body's hand and arm muscular limitations and capacities. It is not possible to say which in this connection is the more important, that of the eye or that of the hand. The eye will not see the needed unless the hand allows of their being played forth. For one reason and another in the early stages of the art it has been feasible to drop every other one of these gradations. The figures in every case must not be tampered with. I should say the first scale unit (there are three atop the instrument) should have them all, the second and third could do with the every other one.

### *The Eye Reaction*

The eye is all important in an art appealing through it; but then, the hand and arm must cap a fruitful wedding of the doing and seeing. This is so for both laboratory use and the use as one of the fine arts of expression made.

How can one explain the eye's leisureliness of response? To attempt doing so might prove embryologically, historically and occupationally interesting. The fact remains that the eye is slow to see. It takes circa one-third of a second to establish an ocular response. Move the light degree effecting unit fast enough and all intervening shade or tint might as well not exist. The capacity of the hand to *attain* and *pause* at any one of these points is essential to reaping results from these provisions for handling light.

There was the third physiological necessity: that the arm be able to reach across the scale extent. The problem as a whole was interactive within the physics, the physiological and the mathematical of it: the light, the body, the electricity.

The interactive nature of the invention's problems fortunately kept it from being appropriated fully for perhaps an early and untimely demise. It has been made use of by those who, asked to lend a hand, thought it the clever thing and better to appropriate without please or thank you.

In a manner of speaking it is lucky for the art that the switchboard levers swing on a shaft of about the inch in diameter. Shade and tint could not even be seen, by such make-shift for restricted movement, even though the piece allowed of them.

The quantity production world said: "What! sell two hundred and fifty thousand dollars worth of equipment on least visible increments, when the very bulk of cast iron and cement will fetch it!" They, in fact, shooed away such little things! as *shade* and *tint*. "The three color lighting" they found easy. But then, this was wrongly carried out and ineffective, untrue and more or less useless in its wholesale splotchings.

### *The Tungsten Filament*

The tungsten filament can be caused to heat in degrees still finer than those that can register on the human eye as grades of luminosity. The wires of the scale unit must be looped. Please see cut. The nature of electrical effect on the transmitting wires and the initial heating of the filament is such that at the beginning of the scale, *where the eye sees best*, the wires are longest. They get shorter for the added brightnesses to the eye. The eye wins over electric potential, then, as this progresses along the scale. The point is then reached where the eye begins to tire and the wires lengthen. The tungsten filament qualifies. All along the line it has been "tested by going through fire" and has not been found wanting. An insulating plate supports the loops that grow smaller and smaller as light gradation is added to light gradation. Then the eye itself wearies and says "enough." Then the wires begin to grow longer again. A look at the last plate made shows this plainly.

A poem might well be written over the triumphs of progress made within a particular art. A metal thread, capable of being made to radiate light in a minimal progression, can



well be thought of as a "highness," a "right-very" little holiness of a sun. It met the capacity of the human eye for perceiving all the degrees of darker, of brighter of which it is capable. And this either in the sum total or in degrees separate. The gradient allowed in its performance was consonant to the gradient of seeing. This is no small triumph for metal thread.

### *Definite Light Measure*

Since the true primary colors do not vary; since scale of shade, and through shade, tint had been arrived at, there was provided valuable unvarying root constants. They were essential guides, first measures, origins. Their varied uses, immediate and possible within the future, are of well-nigh infinite variety. The number of degrees yielded by darkness, by brightness in their various color applications are many. These are also the supporting range of Nourathar play. Increase or decrease the luminosity shining through the color filtering medium and a lesser or greater number of the color rays results. This creates the shades. Scale the color itself, by addition of degrees in the white of the light, and tint is arrived at.

### *Mathematics of the Scale Unit*

Naturally, the unit first shown the Illuminating Engineers, that historic evening, entailed mathematics. Numbers, figures were back of the kind of wire, the length of the loops, the ohmic capacities, the lumens, the lamberts, the eye stretch. These computations fill a good-sized pamphlet. They are in existence and should not be allowed to be lost in the general man-killing shuffle of war.

They are in the hands of at least three of the large electric aggregations to whom I had turned for manufacture of the equipment to be made for *myself*. The form carried out on sheets of manufactured insulating material was made under the eye of the other of the two largest electrical companies.

Figures are accountable, as accountable as wood to the tree, oil to the fish, coal to vegetable growth. Without invention the accountable is useless to forward a creation new. An invention is an effort to be rewarded, I would respectfully point out, to the watchdogs of capital aggregations. And this regardless of the pre-existing materials used in the inventive novelty. Invention is beyond these. The excuses for evading the right can be so pitiable. It can be so abject in its wrong.

### *Length of the Console Top*

The length of the console top is such as to entertain this initial end of the scale's length. It is one that cares for every degree of luminosity in a 1500-watt bulb. A margin of space remains for certain further units and gadgets. It is proper that the hand be directly in touch with these playing means. It is logical that they find place right at the console.

### *Height of the Console*

The looping of the wires at this, the initial end of the scale, conditions the height of the console from the floor. A certain adjustment of the longer wires might be well. As the instrument now is, the height could be something less. However, there are considerations. The plugging in of the wires from underneath the flooring is one. This makes the sink-

ing of the console to a level slightly lower than that of the floor worthy of consideration. Doing so would reduce the height of the stool that otherwise would have to be more or less awkwardly seen.

*All insulation, as may be needed for protection or for electrical or mechanical reasons, is understood. This holds not only for the incoming force but throughout the instrument of play.*

*The exactness, with which the problem has been met, allows these parts also to be of standardized sort.*

### *Recapitulation*

1. A playing scale of least visible increments was first shown before the Illuminating Engineers in Philadelphia as early as the year 1920 and demonstrated before this in 1919.
2. There are two hundred and sixty-seven (267) visible darkness and brightness gradations in the maximum luminosity of the one 1500-watt incandescent lamp bulb.
3. The eye, the hand, the arm reach, the electrical computations are interactively taken account of in the scale.
4. The figures are in existence and available.
5. The absolute nature of the primary colors, the scales for making shades and tints are all root constants.
6. Invention is a potent and irreplaceable factor for making fruitful such materials that are pre-existing.
7. The scale conditions the length and height of the console.
8. The contact making unit is such as to be capable of being obedient to muscular "touch" and timing "feel."
9. The light-scale gamut, as a whole, is capable of meeting in its scope the gamut in human feeling.



# XIII

CHAPTER

## THE SLIDE ROLLER SHOE



**S**LIDE! Kelly, slide!" and "Roll! Kelly, roll"—the crowd could finish, in frenzy of race—ball meeting outstretched hands, man his goal.

Unlike Kelly, the chief playing unit of the Sarabet console slides and rolls *both at the same time*. This electric contact making shoe does not jump from a contact making button to another. It moves with a seemly decorum. It is a propriety of manner fitting to making progression of color shadings in men's suitings, not women's ribbons. Color demands an arrangement that is in the highest degree exigent for the subtle in variety. It cannot allow the possibility of "putting your foot in it" by a hurdy-gurdy play. The shoe has to allow a smoothness. This could best be clinched by both slide and roll to its motion for control. There could be no hop, skip or jump from a contact button to the next as on rounding vest surrounding the rotary—be this a club of them or but one.

This all-important piece of the instrument of play is there for its moving at will across the scale path. It is so placed as to make electric contact with any one of the path segments and its related wire. It is the sled, the roll, the slide, all in one.

The beat itself is as hard and fast as all the forces of Creation could make it, but it has an aureole that is writ for temperament, for all that

disposition has. This is that which, as it were, is "writ in water." It is so uncannily flexible and speaking. Indeed, it can be felt, yet scarcely measured.

It is a very lovely little runner flanked at each of its four corners by wheels that roll as it slides. It is a shoe for going, a sled for sliding and a carry for wheeling all in one.

The wheels are diconical rollers. They are asymmetric. They hug the four sides of a square rod cornerwise placed. There is a handle of insulating material for its moving by hand. There is, additionally, the flexible cord or lead that draws on or restrains the foot pedals drum. This allows for hand and foot movement both in this piece of the apparatus. There are three such detail scale paths with their plates on the console itself. The handles for all three protrude atop the frame which covers the apparatus.

The copper slide or shoe completes the circuits to be closed. This is done through any one of the looped wires of the scale plate. And so, as an intermediate between the power-house current and the lamp filament this unit is all important to creating any shade of light brightness that the light play may need. It allows a travel as the hand and will both wish. This may be from point to point or across any member of the scale path together. It is ideal for

obedience as the timing and the inspiration dictates. No matter how far away the lamps, the control is from this one central point.

The shoe's movement along the scale path gives at each segment that added degree of ohmic power that causes the light to emit just that least amount of luminosity that spells progressive increments of visibility to the eye. There are no unbridgeable gaps between the segments. Indeed the length of the slide shoe adds to this security.

It is to be remembered that the system underlying the fine art of light color playing looks at light as allowing an increase of its whole, cornucopia fashion. That is, it starts from the least point as well as the least quantity and increases to the greatest extension in space as well as its greatest quantity, according as the space and the plans call for.

As we have said, the special arrangements for the fine end, the beginning end of the scale allow the unit to slide and wheel both. Why slide? Why wheel? and both? Because the feeling it must be able to convey is both smooth and flexible. The equipoise through four asymmetric wheels is an added assurance for dependable equilibrium, and insured stability of position.

It is a nice little invention in itself alone. The form of this unit belongs not entirely to the electric problem per se. Not at all. That problem is small compared to the larger one it meets. For indeed it must come along and cap expression that may be felt, yet scarcely measured. So superlative is its purpose.

Know you not that the waxing and diminishing values held in light and its spectral rays must be caused

by it to meet the waxing and waning of values held in emotional expression? That a canny play of such is indeed needed to match these to showings within gamut of human feeling? It is well that both scalings are so wide, so broad. Though the medium be a natural, it has taken much of the intellect of man to cause it so to appear with the needed subtlety and flexibility.

Inner feeling is the chief tool of the artist. The boundaries are there where the sharply tabulated, the labelled and systematized wipes its feet on a doormat marked "privileged to enter." The result can be considered as akin to the supernatural, next door to it.

#### MUSCULAR "TOUCH"

One of the larger reasons back of the kind and form and pieces for movement of the Sarabet shoe is that of muscular "touch." There are exquisite nicenesses to muscular action. The movement in common of specific sets of muscles is such as to be capable of showing the perception and the feel. But only if the tool through which they act is commensurable to the task. Remember the expressive capacity in even the way an eyebrow is lifted or a shoulder shrugged.

#### TIMING FEEL

Bound up in subtleties of touch is the timing *feel*. Both offer notable problems for the tools of performance looking to fine art expression.

Strangely enough, it is within the timing that fine art, made within the moment to moment, strikes solid ground. For being "Hep to the Beat" is being "hep" to a concrete, a very basic, well-nigh unescapable measure underlying the next, and next, and next.

It is the aureole, the halo, the radiance possible to vagary around this definite unit of time that makes the glory of expression. Such worlds of suggestion can be made to transpire within the boundaries of the "hep," and "hep," and "hep." The orator knows it. The musician takes account of it.

And too much fuss cannot be made over the stressed second of time and its fellows. Why not? Is it not potent enough, marked by drum and trumpet, to send the man into the cannon's yawning maw? Indeed, it has that in it that carries a mirror to that prior to known ages. It has much still to tell of these that were before the record of man as the dew-drop comes nigh to reflecting the Universe.

The contact slide and the pulse of man are both policed by this self-same "hep," "hep," "hep."

A friend, unconsciously, delivered a stab at my heart this afternoon. The stroke went straight to the centre. She had just returned from a visit to a large metropolitan centre. "Had she gone to a famous palace of entertainment there?" She had. "Did she notice my light-color play done?" Prodded, she remembered: "Yes, they had some dancers and when they came on the darkness made way to colored light." *It was no more than she had always seen.* I sighed wearily, "Had they not made expression?"

So much "know," so much labor and research can be hidden within an achievement that can be simply used—that has been made just common and matter of fact. It may have been an off afternoon at "the show." I remembered how my labors had outdated any widespread continuity

showing of spectral color regardless of the means required and their specific use. I remembered how bleak and outworn grey was the condition which my conception had so begemmed and adorned into rare excellence and special value. "It is no wonder," I sighed.

The huge labor covering so many years loomed up before me—the much it had taken to make the very material or medium available in its right. The apparatus. The conception of sensitivity wending one's way about ray-color shade, ray-color tint for a feeling result.

How easily conspiracy within conspiracy can effectually cut the ground from under one's feet. How quickly a flood of something rare, not before existing, can be brought about to deluge the world, perhaps with the second or third rate of itself. And all with a prescribed, a forced anonymity. Ah! filthy claws! How easy, how stupid to stab the heart. "Nothing she had not always seen!" It is a wonder there is still so much to see. Indeed, thanks to their pin-headed sight, nearly all of it is still to see.

It is possible this friend was looking for something occult. Such false assumption has been a pretence on the part of this one here, that one there. In all conscience, does not the feeling fine sufficiently elude the mathematical? Has that not enough still with which to invite a clearing up of the concealed from observation, the mysterious, even the mystical? Is that not enough of aura to the legitimate, the scientific, the reasoned? Has it not enough of the occult for you?

This book has much for one to go after.



## XIV

CHAPTER

### THE FOOT CONTROLS

IT IS a fact, well known among instrument makers, that the foot lacks in that sensitive control possessed by the hand. The infinite variety that may be unrolled in play by and through the medium here used—that of colored light—is diverse beyond words to express. The hands have all they can do to exploit them all. Even the feet must be called in to help. The muscular movements that may be made in the course of expression on the Sarabet are sometimes more than the two members can manage alone. It was logical to call on action by the feet also. So arose the pedal controls. These extend that same directing, done through action of hand, of the light intensities.

Useful is the table form. On such food is served. Through a console type control centre much fine art is, and must be, dealt out. Not taste for the tongue or aliment for the stomach is playing with light. It is

meat for new sensings and suggestings. It is a wrapping around that is thin, thin around the corporeal thinnesses. These, nonetheless, are strong as steel though so tenuous. They are newly potent and in their way very, very real.

There is the desk for recording intellectual activities, strictly speaking. It is allied in form and use. Instinct, feeling seems to precede mind in the chain of comparative zoology. It is prophesied that we will eventually let go of the threads of expression. Indeed, it is said that this is happening now, in favor of the strictly intellectual. Against that one can well argue that the stuffs in which fine art deals are pointing out many an important way for the walk of science of that self-same intellectual to follow.

This labor makes plain that it was through fine art that the instinctive sense for rhythmic beat was explained. Many and many an isolated

fact was brought into the basic reason, the basic cause through it.

The sciences now knit tight and close, it is true, about that centre where existence nevertheless senses an immensity still prior and going still further. Will the sciences encroach on and include this "further" in their deployment of fact? Or has the sensed in the void *that* which can always make a seat and ask the sciences to take place? Is it further on than science always leading? Fine art does something like this now. In a manner of speaking it announces that qualities of heart subtend the qualities of brain, and will for long continue to do so.

So knees of both science and art go under the Sarabet console table form. That the player *sits* at this instrument does its part in denoting the infinite that lies in the characters of the art.

It takes attention on the part of the artist in the making of movement to movement, from moment to moment. An alert attitude of readiness must be assumed for careful, indeed for meticulous attention. The player needs take a position that leaves the muscular circle of the entire body devitalized and ready for energizing the particular fibres that are to act. So he settles himself down on the console chair or bench free of tenseness down to his very haunches. His body is bent at the hips, the spine nearly vertical. He rests upon a seat, his feet and hands free for the play. Please see my patent No. 1,357,773. This gives a still earlier date for this form not before known or used. See also my patent No. 1,945,635. Even at this later dating the patent office could

show no such form as prior existing outside of my own showing.

#### THE FOOT PEDALS

There are four foot pedals. These, as now provided, move the contact making parts of the darkness and brightness scales, should the hands have to be at the moment otherwise occupied. They are used on but two of the scale units out of the three. The two are those furthest away from the front. The scale nearest the player allows a more sensitive control even to the hand. This one handled by hand alone, to the front of the instrument, may well be dedicated to the finest part of the light scale. This finest end is at the very starting from the total of blackness. The second and third scales away from the players can the better use the feet as alternative to the hands.

As the light scale gets more and more extended and coarsened in its progressing degrees throughout the auditorium, this additional control up to the auditorium featuring entire may well be relegated to the foot, or feet, also.

As the console is now constituted, two of the sensitively computed scales may be played by either hand or foot. In the three scale units now placed on top of the console their position of further away or nearer the body in itself alone makes for allowing a greater or less sensitiveness in the moving of the playing part. The scale closest the player allows the hand and arm its best control. Being nearer the body helps to steady the muscles. Those Nouralions, those lamp units whose effect is most telling could well be detailed to this, the scale nearest the front.

Of the four pedals that are now part of the instrument the two outward ones, one each for the right and left foot, slide the contact shoe on the third scale furthest from the player. The two inside make themselves useful on the scale in the middle. When both hands are occupied, the increase and decrease of the light and color intensity may be carried on through the play on the Nouralions by the feet.

There are various uses for the hands outside that of manipulating the scale parts. The interactions possible to six primary colors, their secondaries and tertiaries call for much to keep the hands busy. The second and third scales, therefore, may be performed on by either hands or feet. They are only mechanically connected to the foot-pedal control in addition to the same means that are manually handled.

### *The Foot Action*

The feet must be made capable of a very gradual push on the pedals. There is no percussion to light, as there is to sound. The length of the scale, whose entire scope must be controlled, is longer than the distance a foot can push down with the heels at rest. As we have said the foot has other limitations as well. A counterbalance has been provided. Indeed, one foot can learn to lend its own counterbalance to its mate for added smoothness of result. This comparatively simple mechanical problem has given me, the inventor, more trouble than might have been expected. It still can stand a better solving.

I have shown in the patents mentioned one device through which the

larger quantities of light may be cumulatively brought on or reduced but by one motion of the hand. See the patent drawing of the console. Such filling of the auditorium in grosser amounts of the illumination might readily be relegated in part, if not in whole, also to the foot. Future instruments could well take note of the possibility. Motor control is also possible. See my patent No. 1,854,547 for Motor Actuated Switches.

The art is based on a cumulative brightness increase as one of its dynamic potentials. The nature of the eye allows such incrementation to get grosser as it tends to higher brightness coupled to increase of the space lit or featured. As the enlarged scale gets further away from the minute seeing degrees at its beginning, extra pedals for the purpose of handling the scale extensions may well be added.

### *In Brief Recapitulation*

1. The Sarabet makes use of both hands and feet.
2. Foot control is less sensitive than that of hand.
3. There are four foot pedals to the Sarabet as now constituted.
4. Two scale units may be played by either hands or feet.
5. The foot mechanics have given inventive trouble.
6. The art is based on cumulative brightness increase and decrease. As the degrees get grosser and greater space is illuminated, cruder control may be used.
7. In this additional wholesaling of the light, the feet could be made useful through added pedals for control of such extensions.





## XV

CHAPTER

# THE ROTARY ACTUATORS IN GENERAL

THE artist in Nourathar is in fact and effect working through a miniature universe of its own sort. It is a space. It is an area of all he can see. The walls that enclose it, its limits, and all its objects collectively may be subject at once to his effects considerations. This space has no obtruding egress or ingress. He exerts his light-color will inside its wholeness. Within the all there is of this, he causes his plays to become. This behavior in its limited extent is more various and intimate to man than that "sunned" by the great Universe outside. His light nucleates so far as its timing goes, that which days, weeks and months take to do without. Sparse and much thinned is color showing in the big arena. Here he displays it in its maximum concentration. He compacts or intensifies it as well as dilutes and spreads it as feeling dictates. The color is used in its primary essence or its intrinsic first showing in its kinds intermixed. The shades and tints are many. All the

factors are played as a means of expression between man and man.

So, in more ways than one, it is a world of action new. It is much. It can be made to convey much.

### *Appliances Are Needed*

All the above is not done by wishful thinking. The minute particles and waves that are color must be separated, shown apart one from the other, or conjoined. Each phase has its own object for the transmitting. Through material means they must be made to serve. With hope they are played that they merge in way new within and into the awaiting mind.

*Count.* Six primary full intensity colors. With but two each of themselves intervisiting—their secondaries and tertiaries—we get eighteen. Let us say two for white and two for possible contingencies. This summing up makes twenty-two. This, it is to be understood and remembered, is but for the full intensities. This is but the nuclear beginning or

centre of the action, the initial color palette.

### *The Rotary Actuator*

I made the rotary actuator to meet a situation where four members of the body and their reach must cope with number so great and extension so wide. It is in its way one of the most important parts of the instrumental novelty as a whole.

It is not true that "necessity is the mother of invention." *Vision* brings about new ideas and things. The resulting objects are the last step not the first.

In this which is of man for man, that which ~~is~~ is governed by his form. What he ~~is~~ regulated the inventive whole. As for example, his eyes see much of this large variety while his hands are but two to carry them out. The centipede has so many members, the human so few. All the diversity in color is valuable, if not indispensable. They are, in this matter, indispensable as are all the letters of the alphabet to language and literature. The instrumental parts had to meet this apparent impasse of so much to show and but four members to show it.

Each of the twenty-two spectral entities above mentioned must have their little sun or light source to parent them. Each must have a scale on which they may be played. But now! the *reach* of man's arm allows but three of these scales for the necessary detail handling on the console which requires play through at least twenty-two.

I am giving this part of the scale full attention because it is the most speaking, the most important to the whole. It is the beginning, the starting of the scales to the eye. There

is also their extension. This extension, which will be taken full account of later, is also of value and consequence. Without invention three of the twenty-two colors only could find a scale playing path ready to hand; three against twenty-two. Then, too, the timing was exigent and allowed no accommodation through time-taking adjustments in between. At some time it may be found useful and needful to unplug certain units and plug in others. Arrangements for not allowing error in such is shown in my patent drawing No. 1,731,772.

Unity in conception through the oneness of artistic being is an essential of this conception as a whole. One is tempted to make a play on the words "homo-genus" when one thinks how homogenous must be the whole.

Invention had to step in to allow the two hands, two feet of the one man to accomplish that which at first sight it would seem not only one, but many centipedes would not have sufficient members with which to meet number with number.

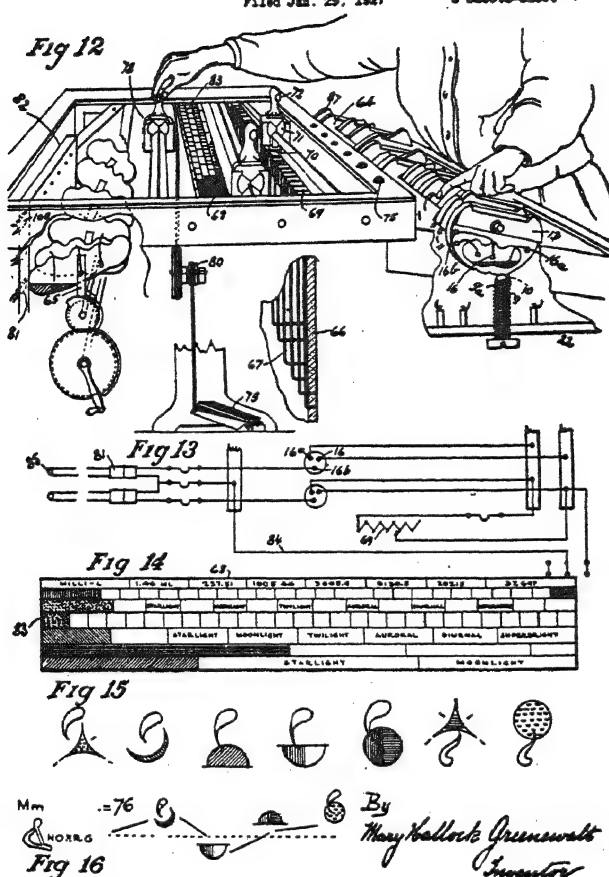
Shall we let our fancy roam and announce that the villain enters the plot? I do not know why "villain" except that the purveying of electricity has not always been accompanied by ways lovely. Enter electricity then. This magnetic, chemical and thundering agency, unassisted by invention, complicated this particular situation. For each scale allowed but that ohmic capacity, required in full, for lighting to its brightest each miniature sun or lamp. By each scale only one could have its very nuance made available. Only one color could be used on a scale at a time, unless very particular

Feb. 6, 1934.

M. H. GREENEWALT  
LIGHT COLOR INSTRUMENT  
Filed Jan. 29, 1927

1,945,635

6 Sheets-Sheet 4



SHEET FROM THE AUTHOR'S PATENT COVERING BROADLY A LIGHT-COLOR PLAY CONSOLE. NOTE THE BANKS OF ROTARY ACTUATORS AS WELL AS THE DEVICE AT THE BACK FOR EFFECTING THE LARGER CUMULATED INCREASES IN THE LIGHT BY THE ONE HAND MOTION. THIS PATENT IS IN FURTHERANCE OF AUTHOR'S PATENT NO. 1,357,773

further arrangements could be resorted to. Otherwise disaster to the apparatus could follow. And no result attained whatever. And there were twenty-two such light sources, and but three scales. This was for color where the color play counts

the most—at the beginning of the shade and tint scope where the eyes are best at their capacity for discriminating.

The rotary actuator met the answer. Please see the patents already mentioned and the appended cut. It

was so constructed that a planned moving of it from one position to another allowed the *single* scale unit to perform a *plural* service. Seriatim, one after the other, it made possible the grading of dark and bright of one color and then was capable of being made free to do the same by another. And this in any desired succession. It is so easy to relate—so difficult and long the accomplishment.

I still think the fluid control the best for this purpose. I seem to have been widely borne out in this opinion. Fluid metal, such as mercury liquid or vapor, is surely more amenable to flexibility than the rigid chunk.

### *The Rank of Actuators*

A rank of actuators, arranged in banks of three, fronts the scales. Eight first, six next, and eight again, twenty-two in all. They are instrumentalities subject to freedom in choice. Any one of them can be made use of differently according to the decisions. Shall one color be "it" at the moment or another? Will red pre-empt the scale path or is it to be orange?

Here again, theoretically, or rather through a nature of color itself the problem is helped. To go a round-about way for playing through green by using two scale means, those handling blue and yellow respectively—these together you will remember make green—may not be "the shortest distance between two points." Similar difficulties are met in other color pairings.

### *The Rotary Actuator a Multiple Connecting Link*

In fact, the rotary actuator is a

unit of unusual parts. In its own way it is a multiple connecting link in the continuity of the electric energy used. It may transmit, interrupt, route, and reroute the current at will. Noiseless, it does not "switch." It guides with grace and amiability. It also is subject to the indefinableness of "touch" and "feel" and "approach." It does not do to strike at the eye as percussion strikes on the ear. In fact, this actuator is a valuable emissary between the powerhouse and the lamps, many as these are.

The rank of actuators have place on the console between the artist and the scales. (See cut.) The problem was solved. It was no less a one than how to handle every least increment of darkness and brightness of visibility and in every hue amounting to many hundreds, indeed thousands of shades, through but three scale units. Through the space these take these were, after all, all the arms and feet could manage, at this the *initial portion of the light scales*. Twenty-two 1500-watt lamps were in this way made obedient to three scale units of 1500-watt capacity each. They were discreetly, separably, serially or seriatim made capable to this service. So potent to the eye is every gradation and shade of light color that this was all sufficient to beginning of the scales, their finer end.

The electric energy stemming from the powerhouse was, as the artist elected, led to heat the lamp filament in minute and discreet amounts of itself and from each one back to complete the circuit for any and all of the twenty-two as need or choice dictated. And this was circum-

vented through but three scale units, all the arm could reach across.

*The scales, the actuators are the heart, the arteries, the veins of the Saret, whose mouths are the lamp heads.* They are the centre of the system, that boasts still greater extensions.

### *The Prepared Surfaces*

It is of high importance to remind often that this subject has to do with the rarely seen supreme beauty essence of jewel color and in a never before imagined quantity and spread. The fact is not to be overlooked, as well, that the surfaces of the space featured are especially prepared to allow the Aladdin-like miracle. Without this there would be makeshift of a sort. There would be waste of much of the light source deliveries: these would be produced with a loss of result, that could more or less, if not entirely, make them null. There would be a useless profligacy in equipment.

### *Rays Not Frittered or Wasted*

In this art rays are not cast to outer darkness, are not frittered away. They are not rarely produced where they cannot possibly register. They are not allowed to become embedded, changed, eclipsed, wasted in wanton disregard of the provisions which they must have to be seen at all. To cite some samples of conditions where such like squander would obtain: Old stages had black velvet curtains, red velvet, dust, dirt, open wings and not even that which could produce these miracles of beauty at all, let alone show them.

I know the very moment when big business was shown. These grasped without please or thank you that which the individual mind, out-

side their ranks, had brought to pass through such infinite labor. Even then they thought makeshifts good enough. Metaphorically speaking, before this they dealt in wings with but one feather, feet with but one toe, colors with color left out. It was this labor that first brought about spread of light-color *continuity* done for whatever purpose and by whatever means. Of a surety it had never been seen before, not even in fountains. And not only the color but every least visible gradation of itself, so carefully described, made and here pictured, has its influence in the general wholeness. The conception maintains, no matter how large or how small the interior dignified by the play.

The described exact and restricted motions of the hand must not be seen as resulting, through play on the apparatus, in spots of color or shapes, imitated or newly designed. The lighting results in an atmosphere rare. How precious to walk out of an evening and ahhh! an exclamation of delight over an envelope to the world of a general dark blue twilight! How restful, how quiet, how supremely beautiful. Such penetrates deep within the one experiencing it. The "ah!" breathes a new life. And dark blue is but one of the thousands. The artist through this instrument and its provisions may use every strand. The artist plays the color band in a "*here that is everywhere.*" And, indeed, in an incomparable suggesting of "*every when being now.*"

### *Pointed with Meaning*

And in this, atmospheres of northern, southern, eastern, western lights are pointed with *human* meaning. It

is a universal gamut, universally at hand. The shafts from all about are driven by the artist into the "bull's-eyes" of the heart and understanding of those present.

This canopy extended to the all about is made to carry from moment to moment a feeling value. It transmits a human equation as in the other arts. We have mentioned these before: architecture, sculpture, painting, poetry, music.

The miraculously beautiful spectral ray is in this art purified. It is concentrated, condensed, compacted, nucleated, intensified, dispersed, converged. It domes, surrounds, extends, recedes, according as to the fullness or lessness dictated by artist feeling.

This is different in kind, not in degree, from that the sun outside shows to the people it shines before.

In parallel to another expression such as music or blank verse, the meanings that may be carried through Nourathar are made plainer. The more penetrating such parallel expression is, the more palpable the message made through light. A beautiful voice of impeccable timbre tells the story to be accompanied by the light play better than, let us say, organ music alone. The relative mesmerism in the several performers counts. After all, it was through the door of parallel expression that Nourathar originally came about. *It is a fine art* in itself alone, in spite of its start.

### *Painting Feeling Through Light*

By dint of the apparatus the procedure is made plain. A simile may help. Onto his palette a painter squeezes color pigments. From each the brush takes account with choice

minuteness. The total is built up as little by little at a time most counts. The lamp unit is the color tube, the contact shoe on the scale the brush. The nuance rings true. Through typical parts and features of an instrument the artist builds, from moment to moment. *The form he makes is of time.* What the eye sees through the more space, the less space featured and other dynamics is unfused. The intention is beyond peradventure. The rays' spread become diffused. It is that sort of yea, yea—nay, nay, no matter what else is there.

In this manner the ray is bent at the behest of human feeling. Like a balky handful, ways had to be found for making it manageable. This was solved as described. The miserable little ray, I know to my cost, is most intractable and knows nothing but to bat off in angles, in rigid and straight lines from point of incidence. And human feelings are soft and rounded! But then there is a handle to this hurdle also. For the angle of incidence, at which a ray strikes, is also the angle of exidence. There is the orderly accountable as a help here also.

### *Recapitulation*

1. The rotary actuator is a multiple connecting link in the continuity of the electric energy used. It may variously route the electric current to be used.
2. It allows play of "touch" and "feel" and "approach" to the muscular sensitiveness of the hand.
3. The rotary actuator allows twenty-two lamps of 1500-watt capacity each to be played through but three scales each of the same single capacity.



## XVI

CHAPTER

## THE ACTUATOR MECHANISM IN PARTICULAR

THE actuator consists of a container made of a round slab of insulating material. It is large enough to curve within the hollow of a man's hand and wide enough to allow the width of one or two fingers for the moving of it forwards or back. A flattened portion along the top allows of both color label and push. It may also be moved through grasp of the hand. It moves on its axis on side pins supported by the console structure as basis. Its edge is notched or indented at various points to hold stationary at certain designated spots of its periphery at will. This is done through a co-operating mechanism also fixed to the console framework.

### *The Pivoting*

The piece onto which the pivoting movement may take place is a hollow tube screwed or tightly fastened onto the supporting base. This tube has its edges bent inward at the top. Within the tube is a spring along its length surmounted by a ball. The

bent edges allow a portion of the circumference of the ball to be acted upon by movement of the actuator itself. The spring yields slightly by pressure on the ball. The ball moves under motion of rotary surface of the insulating slab with which it co-operates. Onto this ball the actuator may be moved to stand at any one of the notching points desired. These engage according to the movement of choice. They are easily moved away or on.

Such is the *housing* for the electricity leading or electric current routing unit placed within or onto the actuator as a whole.

### *A Fluid Current Conducting*

Either liquid or gaseous metal may influence electricity. These may also be a means for the disconnecting of circuits made. I own the broad patent claim on any color console that uses fluid contact making means in its arrangements. It is not exactly fair to use this liquid metal in

a gaseous form and think that by that subterfuge responsibility to the inventor is avoided. See my patent No. 1,945,635 for Light-Color Instrument. The idea would have been missing of fluid control in light-color play console without its original initiating.

No playing part of the instrument, made for the uses described, may be resistant, stiff or inflexible. The pliant, pliable, compliant, yielding and ductile are all part of meeting subtle change in feeling. Explosive though these feelings may be at times, I know (!). The waxing and waning values of, let us say, perturbations within the conscious mind must be subtly met by the apparatus. Sensibilities warm and cold suggested by qualities of values fine may only be suggested through instrumentality equally lending or supple and compliant.

### *The Mercury Container*

I used fluid electric contact making for this purpose. This was for the finer end of the play in particular. I devised a mercury container for the purpose. It is housed within the actuator or may be fastened onto it. Its position is changed by movement of the actuator. This also changes the position of the mercury it includes. Its exact position in this framework is of importance. The metal fluid within joins, breaks or may even span electric current. Perhaps it is only the trained artist who would have known the importance of the nonresistant character of such medium to the purpose. Flexibility, obedience to the least touch are, among the other factors, highly needful to the exigence of the particular kind of timing. Especially is this so

at the fine end of the play where the light gradations used are most exacting. The fluid may, indeed, be made to span more than one lead en route to the circuit to be closed without break. It allows of the timing nice. These points are important to the niceness held in the continuity of expression. The means used here are in many ways highly fitted to the purpose.

An unwanted break would snap the threads of the aesthetic sense that is being unrolled. It would damage the conclusion in the sequence of expression. Blemish, blot or blotch on finished work would not be more defeating. Irritating or disrupting to the sequence of expression as a whole would be an awkwardness in the instrument of play. The current circuit closing or opening means follow these requirements.

We have spoken of the value of the actuator in allowing a variety of color choice through the single electric routing unit. The fluid contact assists the advantages gained through it.

This mercury bottle, as at present constituted, boasts of three leads. These are connectible in a choice through the contacting fluid. They may: (1) Join the electric current to the lamp filament through the scale path. (2) They can cause the filament to be energized excluding the scale. This is known as putting the lamp "on the line." (3) They can then place another lamp quantity on the scale so freed. (4) In reverse it would be the same; from "on the line" to "on the scale" to "out." The fluid allowed this more than one leading according to choice, together with the exigent timing entailed. It relates to the fine



handling, of subtlest color nuance at the opening of the scale from darkness up.

The curved character of the mercury bottle prevents a continuous spanning of all three leads.

The wiring diagram described later is no little part of the operations as a whole. It is important and completely operable to the ends devised. Please see cut of this wiring diagram.

It is not easy to describe. It was difficult to accomplish. The vision was of a wholeness. Block had to interfit with block for structure complete. One part could not be seen isolated of the general objective. The interweaving lacked not in complexity. It must be remembered that the primal point of view was not electrical. It was not mechanical or chemical. The root reason was that one as to how man could best transmit beauties of feeling from himself to his fellow through a conspicuous beauty, not before used in this way.

My lifelong training had been in the realm of aesthetics. Nevertheless, it was hour after hour till late at night that I sat up making drawings and draughtings of the necessary specifications. I was not surrounded by luxury while doing this. The room was a small one in the Y. W. C. A. in Pittsburgh, Pa.

So great was my zeal I went to a glass-blowing concern to shape me a glass container that would conform to the drawing I took them. I remember the wondering, amused look of the manager to whom I talked.

My life's occupation has been developing muscles of arms and fingers to cause these to become equal to the task of playing the notes of even piano concertos. The fine art con-

sciousness was all in all to me in the matter. Nevertheless, a parallel development learned from a technical experience, though entirely remote to it.

How could I have known that large companies, by fair means or foul, had gathered onto themselves every bit of development connected with their kind of manufacture? That indeed they expected that all knowledge, specific in range and aim to their particular capital aggregation, be vested in the few men assigned around their table?

Did they not know that a lifelong training was generally needed for new vision? That a new result and so a new manufacture needed another life of vocation different? Did they not know that the servant of the world was worthy of his particular hire? How could they disregard the fact that monumental moving of it forwards, on its onward course—its advancement towards maturity—towards a better state did not brook effacement of the individual's vision and its rewards? Did they think retribution could pass them by? Invention, Invention, Invention is of the *outside* of them. It is in its way incompactible with the wholesale, wholesale, wholesale purveying of goods except when paid for as a venture new developed by one outside their ranks.

Invention at its best engages the septillion cells within a single human brain. It is a singleness of new vision that must meet tangle after tangle in its progress. The wound-up ball of a new necessity must be seized by the right strand. It must be correctly unravelled. It is the expert who sees where meddling by incompetent hands was ill advised.

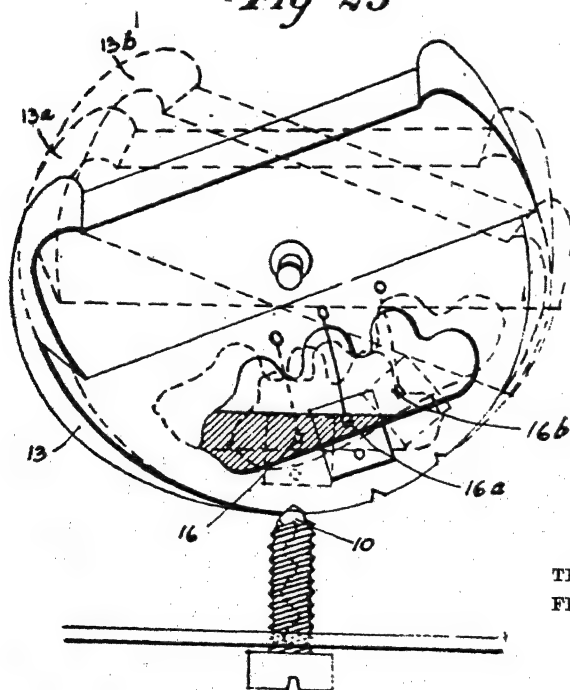
Monumental disaster may follow the one who has spent his all coping, not rightly prepared, with the problem to be met. And this is so, whether it is an individual who sought to tread in where he had no rights on the premises, or an overbloated corporation. Inventive ingenuity is not the all. The special experience is also necessary.

No wonder the manager of the shop looked amused at seeing a grown woman appear with new design for bottle, to be blown, in her hand, and for containing electric current closing mercury. He promptly notified the engineer of my visit. He was in charge of the development manufacturing plant at the moment

turning out under my direction my Sarabet light-play console. This one was properly and piously disgusted. "Did I not know there was a particular agency to be turned to?" The particular agency lost no time "in patenting my switch," so the foreman told me. Another big electric company watching used mercury vapor. It is a matter of court record. Thinner mercury! Thicker mercury! Certainly invention could not be gone around in any such subterfuge.

Any blanket carefully woven into an all-encompassing conspiracy and so knit as to become suffocating to social justice gets sooner or later thrown off. Is there another reckon-

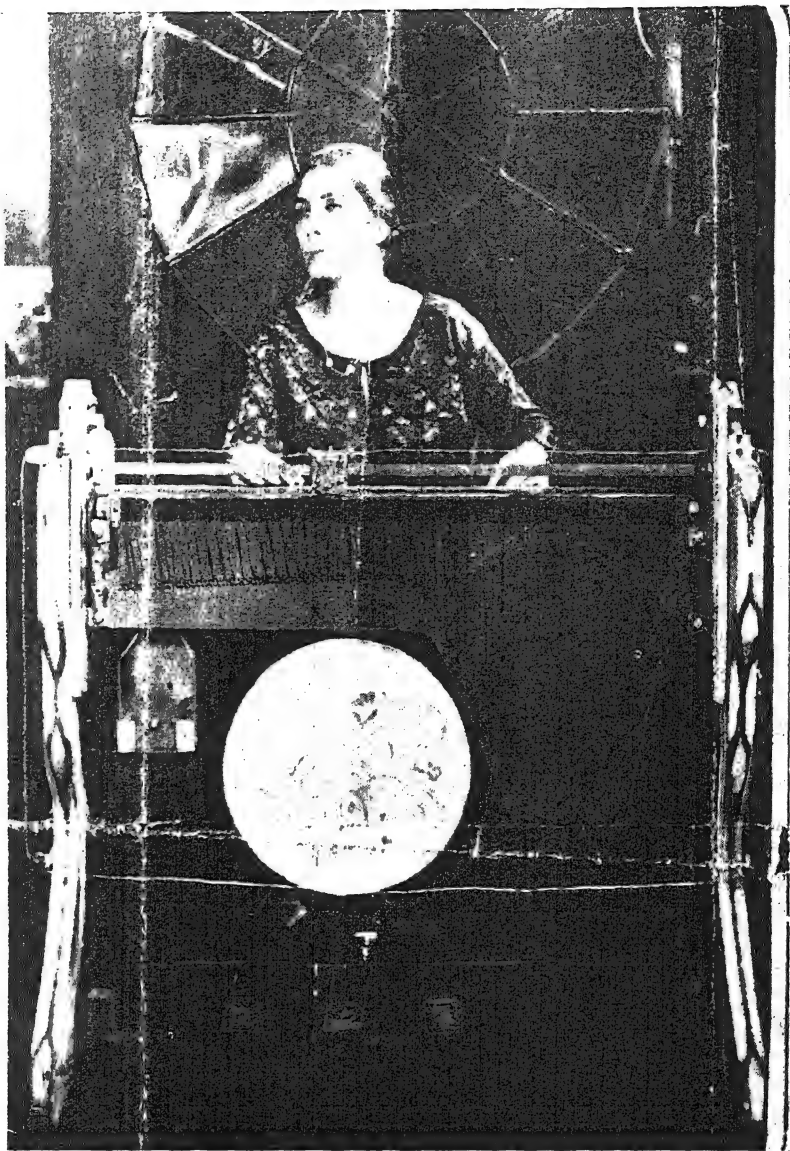
*Fig 23*



THE ROTARY ACTUATOR  
FROM AUTHOR'S PATENT  
NO. 1,945,635



SARA TABET (MRS. SAMUEL HALLOCK) MOTHER OF THE AUTHOR,  
AFTER WHOM SHE HAS NAMED THE INSTRUMENT FOR LIGHT  
COLOR PLAY, FROM AN EARLY PHOTOGRAPH. "SHE WAS THE  
PRODUCT OF COUNTLESS PRUNED GENERATIONS TO WHOM  
THE TITLE OF PRINCESS CAN ADD NOTHING"



MARY HALLOCK GREENEWALT SEATED AT HER INVENTION FOR PLAYING UPON LIGHT. THE SCALE UNIT FOR PRODUCING LEAST INCREMENTS OF VISIBILITY MADE FOR THE SECOND TIME AFTER THE FIRST MODEL CONSTRUCTED BY MRS. GREENEWALT. NOTE THAT THE HOLES FOR THE INDIVIDUAL WIRES ARE BORED THROUGH A SLAB OF SLATE TWO INCHES THICK. THE CONSOLE FRAME WAS DESIGNED AND MADE BY THE AUTHOR. WITHIN IT THIS PART OF THE CONCEPTION IS SEEN MOUNTED

ing lurking around the corner? Does no one care who suffers if those not entitled get the results often evilly gained, plausibly excused?

### *The Rounded Actuator with Fluid Switch*

The rounded actuator, housing a fluid current routing, solved much of the problem that had to be met. It assists, as it should, the artist sitting between the powerhouse and his controls to make visible any color hue or nuance wanted at the moment.

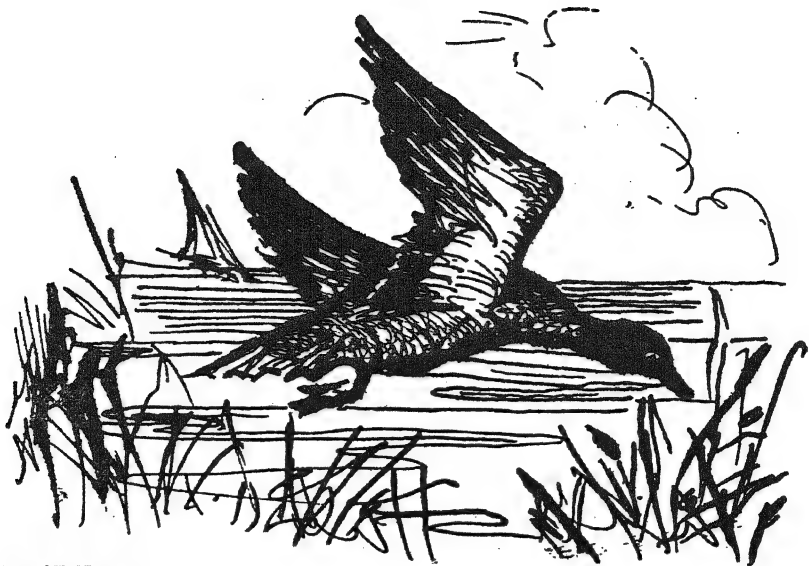
The incoming power, from the powerhouse, comes to a main switch. From there it may be led by motion of the actuator and its fluid contact to the scale and so to the particular lamp whose play is wanted. When the playing on and through that particular light quantity has satisfied the moment's needs, again by motion of the actuator the lamp may be made to rest at its high brightness "on the line." There its color may be of great advantage for enriching another color played against it. Through the same scale, freed of its current load, another color quantity may be played similarly and so, the members of the entire group. In reverse through the bank, one by one, the effect created is reduced till all the light is out. In brief, the expedient met the above.

It must be remembered that the lamps are high power. The effect of

each one can be felt over a space wide. The prepared surface is a chief factor that allows the exact conjuring of the precise result created. The computed least visible increments allow the play to apportion the color, color shade, color tint for their full and absolute result. Point by point, and also cumulated, every least gradation helps build up the expressing values. By such sensitiveness it speaks. It is jewel color, not in one, but all shades of darknesses, brightnesses-shade, tint. The resplendence is very great. It would seem from those who have lost it that the lens of the eye protects the brain to a degree from spectral color's fullest effulgence.

### *The Recapitulation*

1. The actuator pivots where wanted and simultaneously allows choice as to which of the several electric contacts is made.
2. A fluid contact making means is used.
3. The actuator mechanism as a whole solves a difficult problem of choice within a variety that is very great—that held in color.
4. The high-power lamps, together with the surfaces especially prepared, allow seeing an effect for every nuance. The actuator mechanism, as a whole, makes possible the carrying of necessities held in an intricacy of choice that is very great.



## XVII

CHAPTER

## THE RANK OF ROTARY ACTUATORS

**T**O THE dotting originator, the rank of actuators is a beautiful thing to behold. The color labels, as true as dyes can show them, are bright and strong. These, in themselves alone, promise a color definition new. They suggest the spectral band as interplayed and also with precisely determined secondaries and tertiaries of themselves. This makes covenant for an order interesting and new. One knows that which dye works can do. But these labels stand not for color suffused in substance within matter. They stand for rays, for a spirit in atmosphere within ether. Their appearance is fugitive. The permanence in their being, played as means of expression, dwells lingeringly only within the bosoms of those seeing and remembering, and its effect on them. They are made to become, they go as music is made and then passes.

### *The Number of the Actuators*

Three chief banks with two units preceding these and two ending them make up the row. They are serrated on two levels: two first, then on lower line six, further up six again, again a lower six, then higher two, twenty-two in all. In this way there is no haphazard of dwelling on one section of the color scope and not on another. The chance of the accidental is done away with. There is no possibility of only this being used and not that. The whole of the color circle is equally apportioned.

### *The Method of Operation*

They are shown tilted towards the player in their "at rest" or no circuit closed position. They may be held there by their first notching. Moved away from the player and towards the back a second notch engages the ball hold. The scale shoe

is at the extreme left of the scale. There is no glow to the lamp. Change the position of this slide smoothly along the scale steps from left to right, and the light begins to give forth its least perceptible gradations. When play through that particular color is no longer needed the actuator may be pushed onto its third notching. The lamp then is at high brightness. At this third notching it is freed altogether from its scale. It is "on the line." Its circuit then ceases to include that of the scale. If the movement is back towards the player from the second to the first notch instead of to this third position, the lamp is out again.

In this way, any one of any of the lamp groupings may be played or not on and through their respective scales. And this is done, it is to be remembered, through objects that are compact, that take little room. They are noiseless in their action. They are obedient to the instant's timing. They are smooth in their action and ductile.

### *The Wiring in General*

The first group of eight actuators and their eight light quantities are electrically wired through the first scale nearest the player. The next six are wired to the second scale, the third eight to the third scale. This is the one furthest away from the front of the instrument.

### *The Place of Memory*

It is to be remembered that much of the matters of this writing are a concern of fine art. They do not fall within what may be called dish-cloth utility. Attention, memory, play are a part of the consecutive movements made. Energize a lamp

and then fail to move its particular contact shoe on the scale belonging to it brings, of course, no results. It is worth while considering carefully, and at the instrument, the various possible positions and interactions before embarking on the pleasure of the actual play in store.

Labelling helps the memory but just so innocent a subject as labelling opens up a field that is still here to be carefully considered. There are several choices that can be made in the field of labelling. As for example, there may be labelling according to the position of the lamp or according to its color, and further.

It is to be remembered that on and through the prepared surfaces every shade and tint of spectral color tells. There is no slouchiness to the vision governing the invention as a whole, as there is no slouchiness in source of all color itself.

### *Placing as to Color*

The color medium put in front of the lamp is in the guise of a moveable feast. The filter in its frame may be placed either as part of this lamp or as part of that one. And, indeed, a lamp allowing the single contrivance of several color filters in front of its reflector opening may yield any of the color variety these allow, from the one position. From the one-lamp position any one of them may be put into play selectively from the source possessing this expedient in the auditorium. In this case the one actuator must be labelled as controlling or capable of putting in play any of these plural colors, according as to what their color signalling means registering on the console say or show.

Apart from the plural color devices the labelling of the actuators may go either according to lamp position or to the color or indeed both. The labelling may denote both position and color. Such unsuspected reasons will keep labelling of the actuators not rigid till the art has grown older in practice. These various considerations must sooner or later be standardized and then abided by for recordable result.

At the moment it would seem that position of lamp, keeping simultaneously in mind the color give, had best give the label.

#### *The Rank of Rotary Actuators as a Whole*

Look at them. The rank of actuators, as a whole, is lovely to see. Labelled, individually, with several colors or but one, they are suggestive of much. The spectral color band is before you. The two first may be given over to white. The six next yield the primary color. Following these are six for the secondary. These are followed by six devoted to the tertiary. Two keys remain for any particular color need or position emergency.

#### *Flexibility of Actuator Control*

The swing of the actuator allows complete flexibility of movement. The rolling over the free ball makes the three-point pivoting one of nice control. It plays in with the fine in aesthetic intention, and its timings. The objective is in this case of art. The necessary *sensitiveness* as to "approach" to the play to be made is made possible. Equally necessary is it to the timing of the "feel" in the message transmitted. It is such qualities as these that are part and parcel

of the indispensable through which expression deals. Other common-places of play are made possible through this part of the mechanism as a whole.

#### *Continuity*

The actuator and its fluid contact make possible the variety in choice in UNBROKEN continuity. There is no break in the shifting from one circuit to another. Through it the electric conducting is threefold. The colors are many and the nuance diverse. The actuator design allows meeting them all. The unfolding development of the play is gained without break. What is known as a "make" and "break" switch was not to be considered for certain parts of the problem so met. Particularly is this so at the initial or beginning end of the scale from the absolute darkness up.

There are those, who, thinking that the play consists simply of the tapping on of light in a wholesale gob, will be tempted to cry "small potatoes" to this valuing of the finest in color nuance. Against such fault finding "there are *two* niggers hidden in the wood pile." The chief of these is the prepared surfaces on which no rays are lost. Through these every particular is made plain to the sight. Every particular has a part in revealing what is wanted to the understanding. The form of the interior, as well as its neutral colored perfectly reflecting surfaces, make the *detailing play as speaking as the wholesaling* of it. It is through these that is created the perfect palette. This is the unsuspected apposite to producing the ray any way at all. Every ray showing is needed for the telling of the right light story. These are



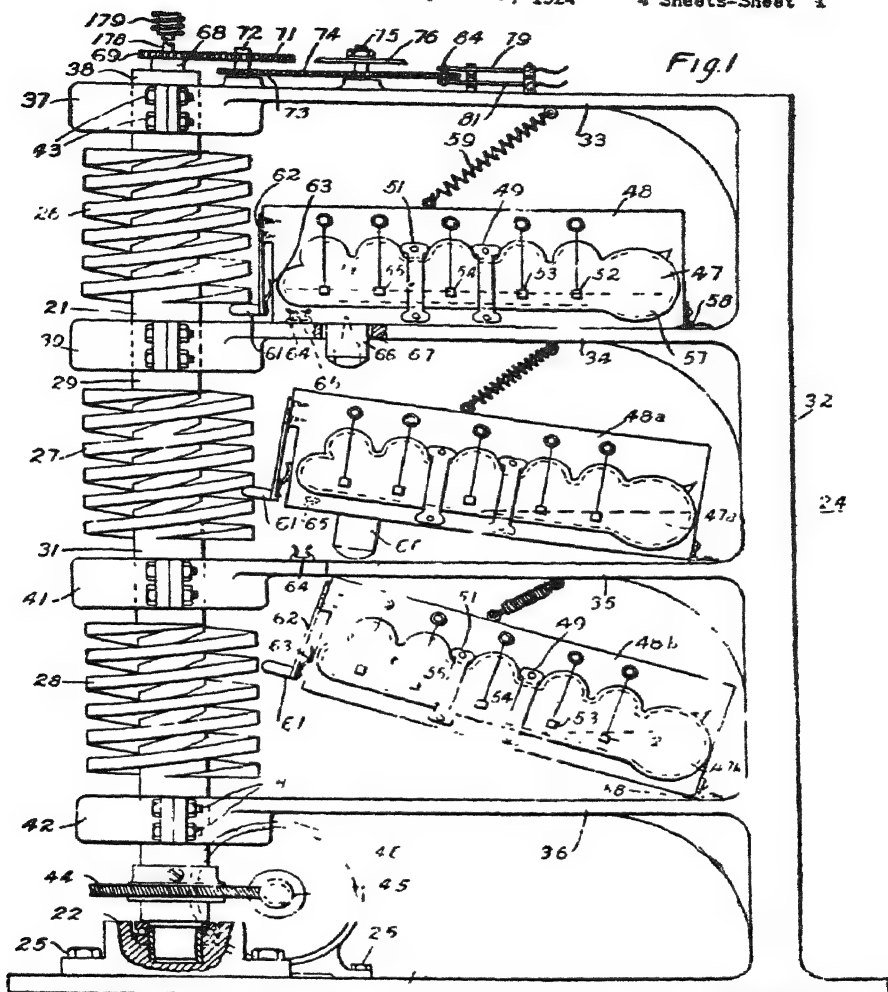
Feb. 17, 1931.

M. H. GREENEWALT  
CURRENT TRANSLATING MECHANISM

1,793,284

Filed April 26, 1924

4 Sheets-Sheet 1



WITNESS

*A. L. Guppy*  
*R. J. Butler*

INVENTOR

*Mary Hallock Greenewalt*

BY

*J. M. Beebe*

ATTORNEY

HAND ROTATED OR MOTOR DRIVEN, THE ABOVE DEVICE MAY STILL FURTHER EXTEND THE GRADUALLY CUMULATED LIGHT QUANTITIES. THE HAND MOTION HELPS IN MEETING THE REQUIRED TIMING, NO MATTER WHAT ELAPSING MOMENTS CALL FOR

among the "*hidden essentials*," the unseen "*flies in the ointment*," that perform the large, the unsuspected necessary service to an unsuspected possibility of rare result. So it is both: the conditions under which the ray result is seen, as well as the need for the least kind in the color showing that supports this fine treating of the medium used.

Without these space and surface preparations, the scales of least degrees of visible shade and tint nuances are futile and lost and both scales and actuators *by the way*, if not footless. It is the hard and neutral metallic surface that allows the jewelled nature of every ray enchantment to appear to the eyes. It is this that repays the creation by the artist at the console. And without it the color may not be seen at all, or so changed as to be unrecognizable. Fortunate that the expedient, that of a neutral ground, can be made so pleasant and agreeable.

It must be remembered that it is the playing points of least increments of visibility that are the cardinal elements for meeting the infinite variations found within human feeling. It is these that are the backbone of light-color playing as a means of expression or Nourathar. The prepared surfaces are a hand in hand to them.

### *The Gross End of the Light Production*

We have mentioned twin hidden arguments. There is a third. It has its own weighty importance. It is an indispensable to the right appraising of the subject as a whole. It is that these scales on the console are only the beginning of light scaling as a whole. This is the waxing crudeness in the quantities of light for

every point of the scales as you travel away from their darkness end. That these fine scales are only the beginning. As you leave the initiating beginnings of them as a whole ever greater brightnesses are needed and used. Less playing differentials are required for the least degrees of visibility. Hence also in cruder units for this part of the apparatus the enlarged scale can meet the requirements. To neglect the finer elements of the scale is, therefore, to practically eliminate the largest end of the art as a whole.

Such unsuspected "*flies in the ointment*" show up the amateur hand that thought appropriation easy. There are proofs that strike back at the unjustified pretender and prove the true origination and its originator. In this art it does not do to overlook the fine detail which the medium carries as an inherent of its very make-up. Those who think in terms of the wholesale, of using large quantities of light only as quickest for the big money gain, lose sight of the actual reality. The infinitely painstaking, the infinitely meticulous was sought to be evaded in the premature exploiting of this art. Such cupidity and laziness do no good. It does but delay. Perhaps it may forever destroy.

### *The Issue*

Take not issue with me as to the correctness of the conception that light play must handle the progressive very least degrees up to the very greatest. Night even has her colors. These, it certainly cannot be denied, are made of least brightnesses. And as to the fine in apportionings of ray qualities for result in feeling: "Good

morning, my dear, what color are your thoughts this morning?"

The more superlative the beauty, the greater the loving care with which its quantities and extents must be laid out. One really, *one really* could not stand a woman, no matter how beautiful, plastered all over and continuously with overdose of jewels. This, I take it, is a parallel to the crude of color spread in mass and nothing else. Perhaps a small gem about her toe at night; a diadem about her head for ending of day. There is loss, not gain, in overdoing.

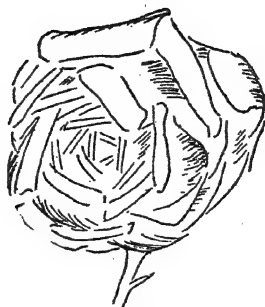
Music is an artificial creation of the human brain. Sounds may be made without benefit of manufactured apparatus. Not so with a medium such as colored light. The playing through it as art, not as nature, brings about the still more fastidiously wrought out in the instrument of play. The result must be the more arranged for through human will because it is exotic. It is indeed impossible to produce artificially so amazing a phenomenon without means fashioned through most exigent care, knowledge and attention and in their whole lengths complete.

### *Recapitulation of the Actuator Rank in Brief*

The rank of actuator mechanism allows that:

1. A given number of lamps of certain ohmic capacity may stand unenergized.
2. They may be individually energized and played through.
3. Each may be put into play on the scale means included in its wiring.
4. Any lamp may be placed at its high brightness "on the line" while other lamps of the same group are played on the scale common to all of them.
5. With the scale path freed, the "on the line" lamp may again be put into play.
6. It may then again reach its unenergized or black-out condition awaiting further play.
7. Full color quantities may passively enrich the field while other color quantities of the same group are played upon them.
8. Large increases in light quantities are played in detail, without break in continuity. The unit allows such expressive needs as flexibility for "timing feel" and neatness in muscular "approach."





## XVIII

### CHAPTER

## THE CONSOLE WIRING

**E**LECTRICIANS have been known to call the Sarabet console wiring a "Chinese puzzle." It has been praised by experts. The ends, for which it was conceived and made, fulfil perfectly the needs. The consequent results brought about, through its use, testify as to the value. This wiring is self-contained within the console. It is the wiring for the scales and their actuators described as on the console top only.

There is a distinction to be made between this wiring useful to the initial detail end of the scales for light-color playing and the wiring that may govern its wholesale cumulation. This latter subtends the beginning of the scale from darkness up and may reach into its final steadily increasing volume for climactic effects. Such may have its own and, indeed, separate wiring. There is a merging of the results, one into the other, to the eyes. Their manner of impinging on the surfaces creates the oneness. Both controls converge within the same console frame. However, the governing influence of what

I have called the wholesale cumulation of light brightness could be at a distance from this central directing point or the console, and so *indirectly* controlled from it. In this latter case the actuating mechanism is still part of the console, though the regulating itself be situated at a point removed from it, or at a point removed from direct touch of the hands.

It is to be remembered that it is only slight fragile bulb filaments that are played on and through—and that these are, moreover, handled more or less consecutively. Tons and tons of cast iron and cement, used in conjunction with so slight a thread as the lamp filament, are of powerhouse equipment. They carry a testimony.

The general powerhouse current is now well adapted to automatic regulation. This eliminates it from the problem. Too great a stress cannot be laid on this point. Protected from the harm that the powerhouse current could do without this careful regulation, the filaments, single or

plural, may be well *directly* played upon. For the wholesale end, the control can be largely mechanical, and even indirectly electrical. Several drawings are here shown that were conceived to meet this point.

### *The Hand Directly at the Control*

The hand should be immediately in touch with the control, free from intervening agencies at the scale's initial end, since the play there is subtle and fine. Conceive the difference, should a violinist have to handle his bow by indirect means. The timing of expression is of such very slight differences in shading. Much of this timing may, indeed, be

felt, yet scarcely measured. The loss in timing and result, through an unnecessary indirect control, may be only with great difficulty overcome, if at all, by artistry. It is something as is an impediment in speech, though worse in its expressive results. This is particularly true for the handling of the least visible increments of darker, of brighter and their consequent color shades and tints at their starting. It is there, at the initial end of the scale, that the eye is most discriminating. Further along the scale cruder means for the cruder quantities handled will do.

Remember the well-nigh miraculous sensitiveness of the eye. Color

M. H. GREENEWALT.

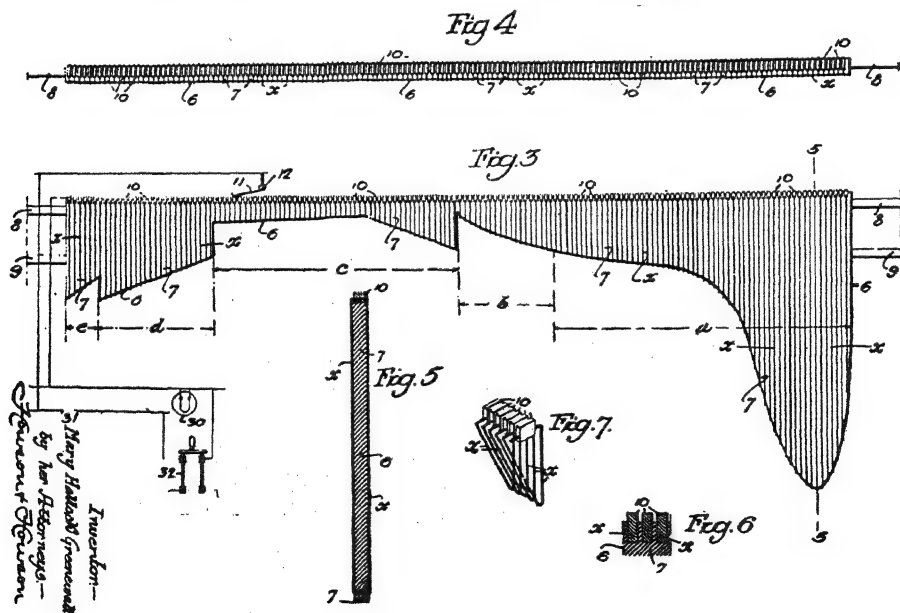
RHEOSTAT.

APPLICATION FILED DEC 10, 1919.

1,357,773.

Patented Nov. 2, 1920.

2 SHEETS—SHEET 2



THE AUTHOR'S PATENT SHEET DRAWING  
COVERING A SCALE OF LEAST VISIBLE INCRE-  
MENTS. PATENT NO. 1,357,773

accretioning, decretioning, extending, de-extending, amplifying, fluxing, darkening, brightening, mixing need a meticulous medium of play where creating of expression depends on changes so minute. The cruder enlarging, as extension to the finer scale end use, is not so fastidious. Means for broader results brook coarser apparatus. It is to be understood that even at the scale's enlarged end, the playing is still by least visible increments but more light is needed to register as such and so by and large the scale steps are not so squeamish in their demands.

#### MOTOR CONTROL. MERCURY SWITCHES ON SHAFT

##### *The Wiring Problem in General*

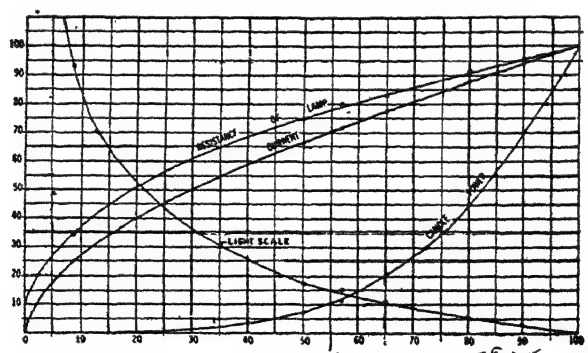
Foregoing chapters have made plain the difficulties that had to be met in the many factors that had, perforce, to govern the Sarabet wiring. The appended diagram met the problem.

#### *Description of the Wiring for Detail Play*

The three groups of lamp units, controlled each by the three groups of actuators, are separable and distinct. That which is true of the one group is true of the others. Their results converge. They are in this way continuous in their combined effects.

Within the several circuits of any one of these groups the mercury conductor is a star performer. The word "star" is fitting since this delicate contrivance has many fine points to it. This liquid metal bottle is a midway of the wiring. It allows of more than one choice within a plural availability. It is an important centre within the system's electric arteries.

We will start from it to trace the current way. The points of ingress and egress of the powerhouse current have significance only as furnishing the current wherewithal.



THE AUTHOR'S GRAPH OF THE SEVERAL CURVES, INTERACTIVELY CONSIDERED, THAT UNDERLIE THE FIGURES BACK OF THE INITIAL, THE FINEST END OF THE LIGHT SCALE. THIS IS SIMILARLY EXTENDED AS THE LIGHT CUMULATION IS ENLARGED IN AMOUNT AND SCOPE

Once this electric power is allowed into the console, it is but the subject slave of the ingenious device above mentioned. It then has ceased to have any part in the powerhouse regulation of the powerhouse output alone.

### *Hidden Values of the Mercury Conductor*

In keeping with the entirely novel viewpoint in handling the light-color material, this conception in fluid conducting conceals unsuspected points of value. Call them "niggers in the wood pile," if you will. But it is only a seeming enigma that is hidden within its novel and unusual features. It is the fitness to the particular viewpoint that at first glance makes their worth unsuspected by even the expert electrician. Practice to the ends sought makes their particular fitness apparent.

### *The Rounded Form of Mercury Bottle*

A bottle of rounded form moving over a fixing apex seems an innocent matter enough. Without this particular contrivance, it is my opinion, the being of the fine art would be seriously handicapped, if not endangered. It would be destroyed at its best at least. This rounded form allows but an "either," "or" and not both of electric contacts it can make. It cannot but join for the one discreet play at a time. An impasse is obviated. This conjunction of "rounded" with "fluid" makes safe and possible the insertion of one of the lamp units in a circuit common to more than one. It is "one" or "the other," not both. There is no "make and break." There is no instant of the *nothing* in between. The continuity of the expressing intent is

not marred. The leading is smooth. It is subject to a nice, indeed to an overnice *moment* of choice as to the particular instant the current is to connect. This way or that, that way or this, according to the conception to be fulfilled.

The fluid allows of the momentary straddling of the three contact points of the conducting unit en route to two. This also makes for an unbroken continuity. It is a single pole conception. Though the leads are three, the circuit is but one. Within it the scale path may or may not be shunted in. When not shunted in, it is inert. It is without effect.

The system, as a whole, banks on a powerhouse automatically regulated to abide by its stated voltage. The making up for faulty current provision is not the concern of this instrument. Indeed, it should not be of any other.

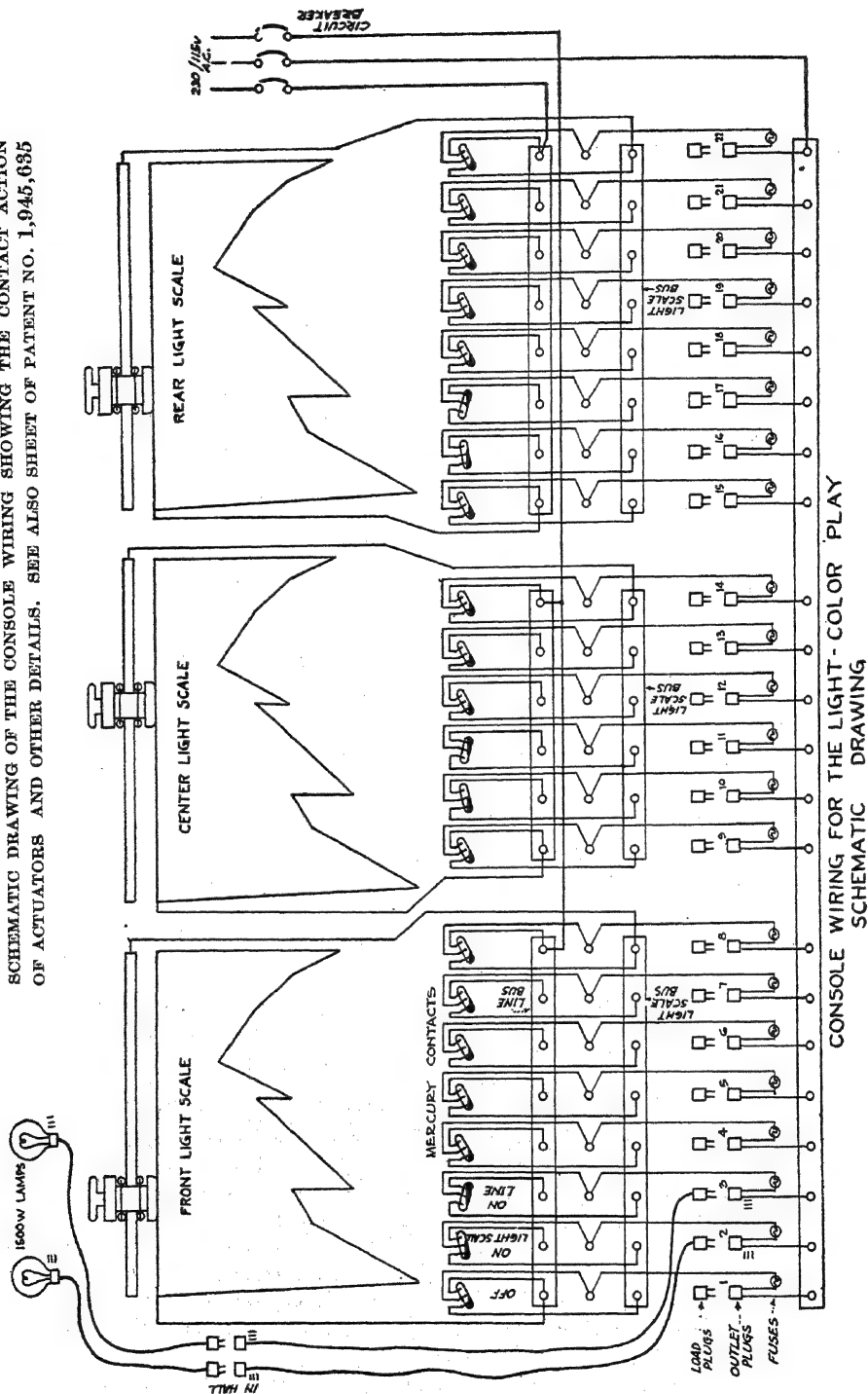
### *Description of the Wiring Proper*

To begin is to begin. To proceed is to proceed. Let us embark on the description of the wiring of which we have been writing. I will take the first group of eight lump quantities, and their eight actuators, as a master delineator for the other clusters. It will be remembered that there is a one and separate scale unit held in common by each group of these. This is not common to more than one of these assemblies.

Since we are describing a specific movement to a specific end, we will take the first key of the first group of eight as an example held in common by the group.

The first contact point of the three, at which every bottle stands when at rest, is only one leg inserted in the fluid metal. The actuator is at that

SCHEMATIC DRAWING OF THE CONSOLE WIRING SHOWING THE CONTACT ACTION OF ACTUATORS AND OTHER DETAILS. SEE ALSO SHEET OF PATENT NO. 1,945,635



CONSOLE WIRING FOR THE LIGHT-COLOR PLAY SCHEMATIC DRAWING



point tilted towards the player or towards the front of the instrument. In this position only one lead nodule touches the mercury, and no circuit is created. This no closed current leg, leading out of the bottle, is joined to the wire or conductor that goes to a bus bar. From this bus bar, the line goes to the left-hand end of the slide bar on which the commutator shoe travels. The current, when closed, is so led to the scale path and from the scale path out to the positive or plus side of the incoming power. There, we will leave it for the moment. To make plainer: Tilted towards the front the fluid metal puddle covers but the one lead and, in itself alone, completes no circuit.

The second nodule of the mercury bottle, away from the front of the instrument, is the middle one. This lead is fastened to a binding post directly underneath the actuator grouping. From this to one side of the lamp, so through the filament and out to the neutral or minus side of the incoming power.

When the mercury bottle is tilted on to its second notch away from the player, the mercury joins the two first legs (the first and second) within the bottle. The mercury then closes the circuit in which the scale path and its shoe are included. Please remember the course described for the first leg. As the shoe is moved towards the right the lamp is lit and its darkness and brightness and, hence, its color shade and tint may be played on as desired. The first leg includes the scale path. This must be remembered. The second completes the scale path circuit through the lamp and back.

The third leg away from the player

leads to a positive bus bar also under the actuator grouping. From there it joins the positive or plus side of the incoming power. When the mercury connects the second to the third leg, the first lead is out of the mercury and the scale unit is thus shunted out of the circuit. *The lamp is then at high brightness "on the line"* and its intensity cannot be modified or played with. The spectral color is at its full potential. Its purpose then is to enrich the ground on which other color nuances may be played to modify it.

It will be seen that the circuit is a single pole, one into which the scale playing unit may or may not be shunted at the playing need or will. *The scale shunt is a common property to several circuits.* It is a scale shunt for the group of eight lamps being considered. It is a common property of all of them. *It is, however, only to be used within one circuit at a time.* All eight, on the other hand, may be placed at their full incandescence ("on the line") simultaneously.

### *The Motions in Reverse*

In making these moves in reverse care must be taken that no other mercury bottle of this first grouping of eight is in its scale including position. The scale cannot to its full capacity be common to more than one lamp at a time. *Important note:* I am confident that the future will complete many devices to make the routings described still more broad.

(1) I have already thought out a way by which no other actuator may be moved to a scale position already used by another. (2) It is also possible to restrict the slider motion of two lamps on the one scale in such a

way that the ohmic capacities of the scale wires are not exceeded.

For the time being—with the scale path free, the lamp “on the line” may be again put into play on the scale path. This is brought about by the mercury bottle being tilted back to its second notch position, from this back to the first notch or no circuit made. At this position it is again in darkness or out.

### *The Break in the Mercury*

It is of high importance to remember that once the lamp is “on the line” there is a complete break in the mercury between its first and second notching positions. *The break in the mercury means complete break in the inclusion of the scale shunt.* The eight lamps may all have their “on the line” circuits completed subject to the moment’s choice. In this position their lines are entirely separate and individual.

### *One Circuit*

The circuit for each lamp is *one*. It conducts *either* by inclusion of the scale unit or by ignoring this. Mathematically speaking, the ohmic computations are consistent throughout. In the particular instrument being described the lamp is of a 1500-watt rating. The ohmic capacities of the scale-plate wires are also such as to accommodate only the electric quantity used by the lamp. There is no need for hiding behind a hodgepodge of cast iron and cement. Accidents, wear and tear common to botched-up carelessly computed quantities are not a part of it.

The parts are fused throughout. The mercury bottle is itself a safety device, in that any undue strain

would break it; and letting the metal fluid out would break the current simultaneously.

The curved character of the bottle, as well as the curved character of its actuator, makes continuous inclusion of unneeded leads at once impossible or discontinuous. Electrodes terminate in a pool of mercury within a cup. They are braised into the end of the tube. Silver contact ends are sealed hermetically into the bottle.

### *The Capacity*

As at present constituted, five thousand eight hundred and seventy-four shades and tints, together with their well-nigh infinite admixtures, may be arrived at discretively through two hands, two feet by 33,000 (thirty-three thousand) watts of illumination out of 22 (twenty-two) 1500-watt units. This excludes the further variety brought about by a multiple number of color filters fronting the single lamp. It is a wonder color palette. What if “frequent tears have run the colors from your life, and left indeed so dead and pale a stuff”; in this they spring again.

### *The Several Banks*

What is true of the one bank of eight-lamp quantities is true of the other two groupings of six and eight, respectively. They have their separate bus bars, their separate leadings. Conceivably other groups may be added to these, should further need arise.

### *The Wiring of the Cumulated Enlarged End of the Scale*

The wiring for the cumulated end

of the light scale offers far less difficulty. This has been touched on in other portions of this work. I would also refer the reader to my three patents: Nos. 1,714,504, 1,793,284, and 1,854,547.

### *The Wiring in Terms of Color*

The sense and fitness of the described wiring are vested in the results that may be obtained through it. These results are not measured only by the spectral color attained with its shades and tints, but in the emotional values these are made to convey through the play. Such values as are, by the artist, invested through the plays made with the capacity for expressing individual feeling. Such capacity for expression this art holds in common with all fine art. The wiring through the scale allows creating color shade. These shades of one color may be played against one or more colors stationary in their

effect, their lamps "on the line," or with others in play. This enriches the result. Only practice can call out the marvel of variety, impossible for words to express.

### *Recapitulation in Brief*

1. The ohmic capacities of the scale wires are carefully computed to the wattage used—no more, no less.
2. The scale unit may or may not, at choice, be included in each lamp circuit.
3. All lamps may be placed "on the line" at their full brightness. Since combination of two colors may but result in another, this may not always be resorted to.
4. A quantity of full intensity color enriches nuance played against it.
5. By means of the scale path shade is played. White on the scale path played against color gives the tint.





## XIX

CHAPTER

# THE SPECTRAL PALETTE MADE ORDERLY TO THE USE. THE PLUGGING IN TO THE CONSOLE

THE actuator expedient, together with its wiring, serves well for promoting the ability to create the desired ends. The plugging in of the light sources, seen in their connectings to these, is a matter not so innocent. It is a consideration of essential importance. A hodge-podge, hit or miss in a following-up, apparently so simple, can defeat the results so well planned.

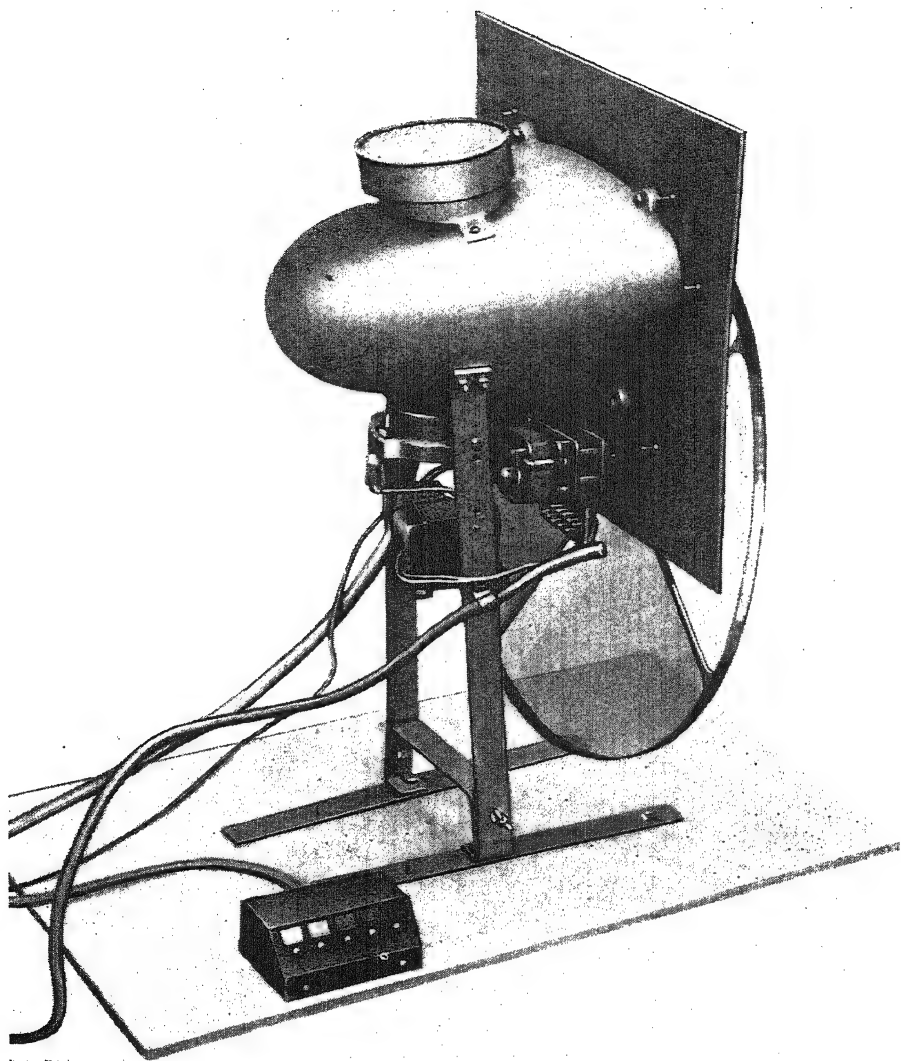
In this art a lamp unit is a ray-color quantity placed to hand for the playing on. If such a one is equipped with the plural color apparatus, it may furnish more than one of these, each one of the plural order being at the discretion and choice of the artist at the Sarabet. It will not do to have these elements of the color palette placed in any disorderly arrangement to the wanted reach. *The care in the plugging in of the light sources, thought of in conjunction with their particular color gives and their positionings, is all important.* An accounting of their kind and placing, and through labelling *all along the line*, is a necessity that is weighty.

The one side of a lamp-head plug must be fitted into the right apposite ready for it *and only it* on the console. For it is but one of a chain in cause and effect that is provided

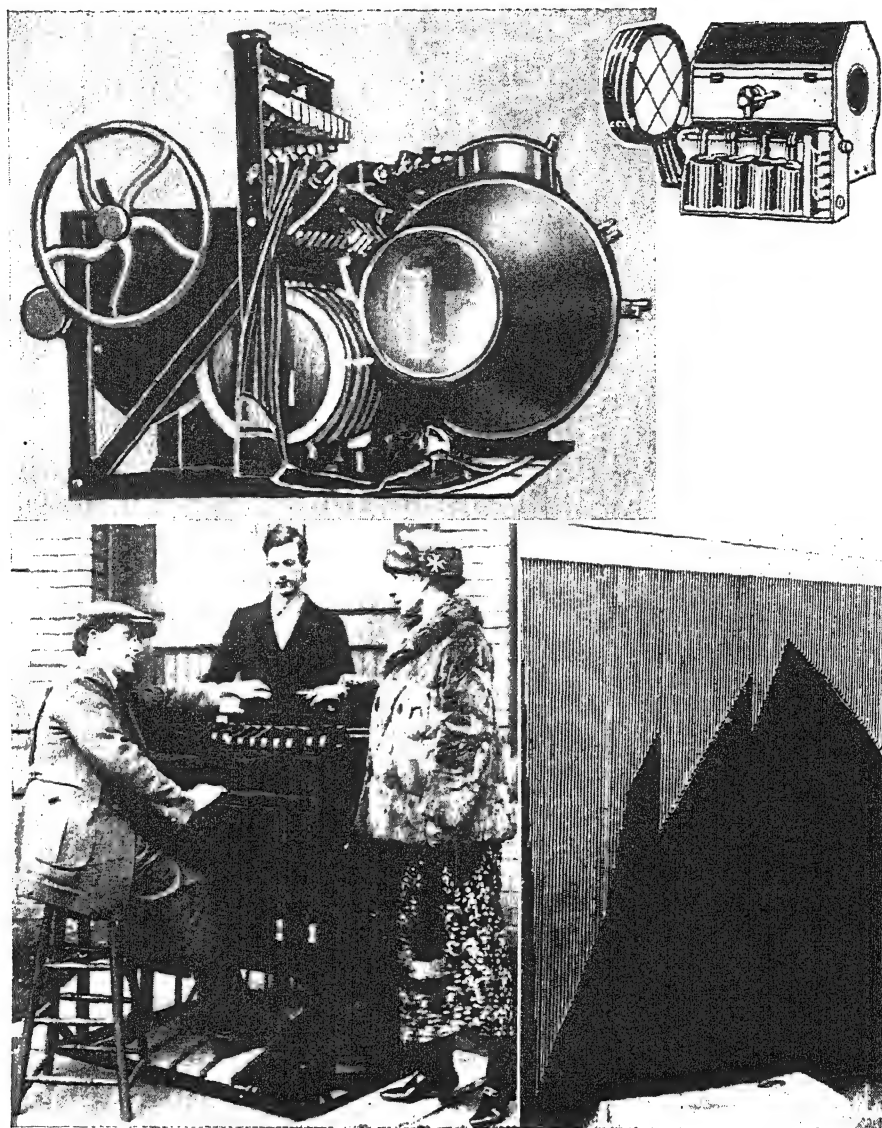
for the fetching of the right color to hand as the instant's whim or design wishes. Not to have this properly looked after makes a tangle that blocks the very use intended. To reach out and up for "bringing to book" just that wanted strand of rainbow ray to hand is here not just poetic speech. It is made an actuality. It is made so for the playing on to the ends of a large result.

Figuratively speaking, each electric "ring-around-a-rosy" provides a given phase of any one of the varying colors of a light paint box. In a manner of speaking, each takes the place of what the tube of paint is to the painter's palette. Only here the integrals are used for suggesting feelings in an art created, as poetry is created, within the passing of moment to moment. It is another way of suggesting aesthetic content, mayhap beauties in feeling. The comparatively simple expedient of a plug, wrongly or properly labelled, and inserted in a wrong place, can make or mar the right availability of the particular color or colors, the source of which it is a part can fetch. Such error would make for confusion worse confounded.

These plugs are all leads for light sources. But ah! the color yield and the colors' placings. These are



THE TRIANGULOID REFLECTOR FOR SECTORED COLOR WHEEL AND  
MOTOR WITH SIGNALLING OF COLOR POSITION. AUTHOR'S PATENT.  
PHOTOGRAPHED FROM THE MANUFACTURED INSTRUMENT



UPPER: THE MANUFACTURED UNIT FOR THE MOVING OF FILTER ARMS OPTIONALLY BY REMOTE SOLENOID CONTROL IN FRONT OF THE LAMP OPENING. SEE THE BROAD CLAIMS OF AUTHOR'S PATENT NO. 1,654,873 COVERING THE ABOVE. LEFT: THE SARABET CONSOLE JUST OUT OF THE SHOP TO BE PHOTOGRAPHED. THE INVENTOR MANUFACTURER IS SEEN STANDING AT THE RIGHT. RIGHT: THE FIRST LIGHT SCALE PANEL UNMOUNTED USING COMPOSITION INSULATING BASE. THIS MARKS AN ADVANCE OVER A TWO-INCH SLATE SLAB. PITTSBURGH, 1924

"birds of a different feather." They are the dictators of where the plug should go.

A spectral color source may be so equipped as to yield but one color or hue, or it may have placed before it the moving arrangement for causing it to yield at will any one of a number of these. These facts alter not the case. The chance may not be allowed in the routing via the plugs. To be able to plug in or unplug them makes for flexibility in moving the units, should this be found neces-

sary. It is also an essential convenience in moving the instrument, as a whole, from one place to another. This latter is another possibility of the rental uses to which the instrument may be put.

The way of a conducting circuit and its wire cannot be seen through the instrument's casing. Designation of its several terminals, terminals that may be disconnected along its line, all must assert the identical joining for the common route. There are

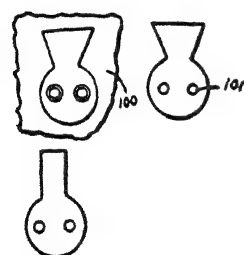


Fig 25

By  
M. H. Greenwalt  
Inventor

Fig 26

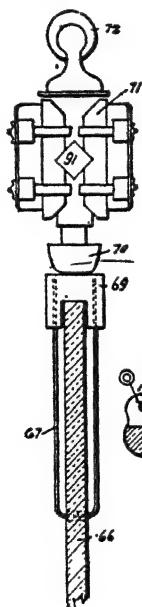


Fig 27

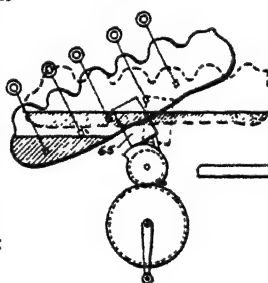
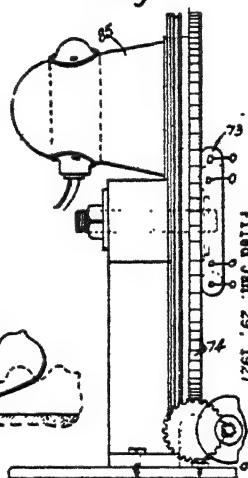


Fig 24



Feb. 6, 1934.

M. H. GREENWALT  
LIGHT COLOR INSTRUMENT

Filed Jan. 29, 1927

1,945,635

6 Sheets-Sheet 6

SEE FIG. 25 FOR PLUGS OF DIFFERING EXTERIOR CONFIGURATIONS TO AVOID ERRORS OF LAMP PLUGGING. THESE COULD CONCEIVABLY BE OF VALUE FOR PLUGGING IN, IN THE DARK. NOTE OTHER DETAILS ON THE SHEET: CAM HAND CONTROL OF MULTIPLE CONTACT MAKING, THE PIVOTING OF ACTUATOR, THE SLIDE, ROLL SHOE, THE MOTOR CONTROL OF MULTIPLE FILTER MOTION. SEE ALSO PATENT ISSUED TO THE AUTHOR NO. 1,731,772, BOTTOM OF SHEET 3

several points of juncture for each of these circuits.

The provisions for helping along this purpose, shown in my patent No. 1,731,772, bottom of sheet 3, could well help in a correct serving to this end. In this the outside configurations of the plug parts are *different* for each pair. The right male can, in this case, be interfitted only to the female meant for it. This helps in precluding the possibility of the wrong color, through the light source it fronts, being plugged in for eventual play through the actuator and scale not meant for it. It obviates any possible mistake even for plugging in, in darkness.

The conducting wires from the light source must connect all along the line, no matter how many disconnectable points are theirs, so as to reach the *particular* actuator noted as controlling its play. Lack in this care may even mean that the source will not be in control at all. The actuator meant to control it may be altogether cut out of this or any other of its possible provisions.

The scale units on the console create the meticulous control of every shade, every tint, where these count the most on the eye. A careful marking or labelling of the plug ends, *all along their lines*, is essential for the intelligent playing of the ray color. This care is unavoidable. It puts the particular waves of light in the right allotment for the discerning use.

The standardizing of the instrument and its parts will set, will freeze this determining, once the accepted routing is established. The correct "plugging in" is not a small part of such standardizing. "Quantity production" will be obliged to take into account the required acceptance.

Such acceptance is still in a fluid state for the final determinations. These must be arrived at.

At the actuator, at its plug end on the console, on the interfitted plug opposite at the end of the lamp line, at the plug end in the wall, ceiling or floor, and thence to the incoming power, all these belonging within the one line *must be identically labelled*.

The several banks can be noted as Bank 1, Bank 2, Bank 3. The particular key of each bank would have its number. Bank 1, Key 3 or Bank 2, Key 6, and so further. Such will carry through to the base plugs, or those higher placed as part of the edifice walls. These can be additionally designated as Lead 1, or 2, or 3, and further.

A dependable identification could then be a comparatively simple matter. The system itself simplifies and makes this routine expedient far smaller than would be expected.

Actuator Bank 1, Key 3, Lead 10, or Bank 3, Key 2, Lead 4, and so on, makes error out of the question.

All the distinct leadings to the spectral sources will have their right signposts for reaching the spot that is theirs and only theirs. It is one not to be missed.

In this way the spectral palette is made orderly to the use. The right plugging in of the lamp sources, with their colors and positions both properly identified, is in this way made intelligently available to the fine art of light-color playing used as a means of human expression.

It is to be remembered that the care in chief as to this point is that of the high-power sources through which the color scales are initiated. As the greater spaces are featured by



their own particular broadened controls the items are not of such minute care.

They are of a multiplied and cumulated consideration. The view as to apparatus and space both gets more general. It tends to a handling more universal, less squeamish.

Indeed, in one of my patents, I

show a means for changing the color filters themselves in a plurality before a large number of light sources broadly disposed throughout the general space. This is in case one desired the extension of the precious color everywhere.

The nature of light is such that the high climax could well be of its white, of its sum total alone.

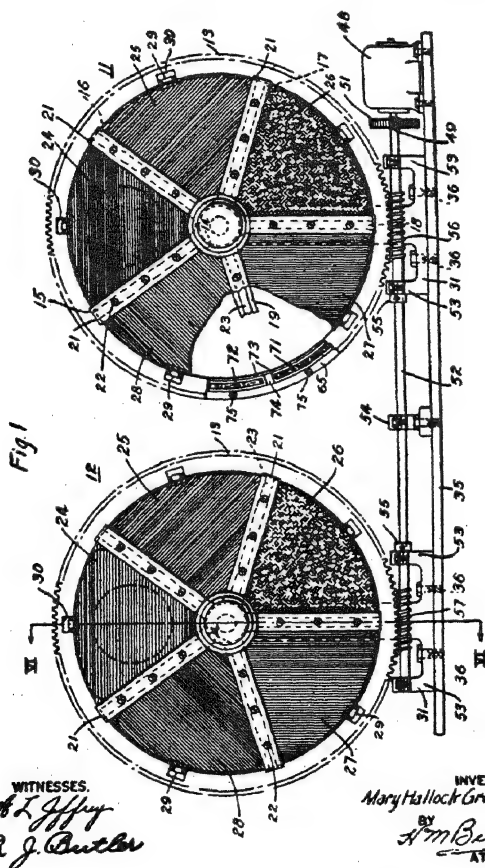
Aug. 25, 1931.

M H GREENEWALT

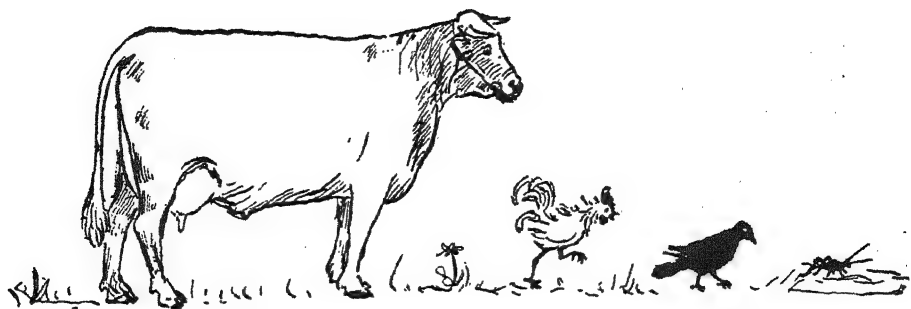
1,820,899

LIGHTING APPLIANCE

Original Filed April 10, 1924 3 Sheets-Sheet 1



A SINGLE CONTROL OF MULTIPLE FILTER  
UNITS IN FRONT OF A PLURAL NUMBER OF  
LAMP AND REFLECTOR OPENINGS



## XX

### CHAPTER

## THE SCALE OF LEAST VISIBLE INCREMENTS. A DEFINITE MEASURE FOR COLOR SHADE, COLOR TINT

I AM not mistaken. This chapter holds a big story. I would call it an epic one were it not that the dictionary defines "epic" as "grand," "noble," "heroic." The story is an *important* one rather than meeting adjectives as the above.

I have a fondness for the fundamental of any subject, its absolute. Such do so make a pillow comforting for the head to rest on. The brain must otherwise connive and reason and fret and guess and go about "doing the best it can." Humanity should seek the rock-bottom bases. *This chapter is reared on one of them.*

Elementals have already done their part. Among them are those, which are that form of matter that cannot be decomposed or formed by any means known to science: the elements themselves. Of these, by last counting, there were eighty-eight. There are others, I am quite sure, that are not likely to find themselves classed or settled on, by, and through form of matter. But who knows, perhaps these hark back to stuff also. One

that I am curious to see settled as to the reason for its being, if being it has, is likely to be of a basic quite different. It is this one: It is that the cries or calls made by the creature world—roosters, cows, black-birds and further, for some deeply laid cause—are inclined in their callings out to fall or hit on tones that have already been designated as constituting the "chord of nature." Let us say this is middle "C" and its overtones. One example that seems corroborative I can quote from a well-known author that—"The little mole cricket emits a soft g-r-u about two octaves above middle "C." See if you also note or seem to note that the rooster and cow get on the same pitch, though octaves apart. This would be, of course, notwithstanding the differences in timbre, sound quality, and lack of technique in vocal production of the animal world as a whole. It is also quite possible, indeed it is quite probable, that they tend to imitate each other's tones. That it is in this way that they tend to a similarity as to pitch.

The idea is, I think, broached here for the first time. I have not absolute pitch or I would be more certain. I do think that the notes made by animals do lean to those that wish to and do lead to other scale fundamentals, harmonically speaking, as b to c and f to g, as for example. It is as though the pitch mirrors the animal's uncertainties, yearnings towards that they understand not—something they have not, or cannot rightly sense. It is as though the very tones they made yearned towards a more settled reach or fundamental.

As regards fundamentals: it would seem that my findings as to the pulse origin of that sense of rhythm or beat, that we externalize in our activities, and musical and poetic, (See Pop. Sc. Monthly Sept. 1903) such indeed as is also followed to its degree throughout the animal world, and also through the sounds the animal world makes, have been accepted by well-known thinkers and writers. One of these I will quote: from *Aural Harmony* (revised) by Franklin W. Robinson, Hill and Coleman, New York, 1936, vol. 8, p. 4. It says: "The tempo norm conforming to the speed of the heart beat—is the speed from which . . . designations of tempi are measured." Indeed, I am confident that the "second" of clock-time ticking, of which sixty make the hour, was also, at its starting, a suggestion of the heart action as above. Sixty beats per minute are said to be about the timing of the normal pulse for those living in warmer climates, as it is also said to be that for women. Was not the second of time set in a country not bleak and cold? Was it not in Egypt?

As regards the theory that the science of music making is based on the chord of nature, I have a newspaper clipping before me headed "Color Harmony, New Kind of Music." The author of this kind of composing explains that his system is based on the theory that every note has five "shades"!!! sic—Middle C, for instance, is used interchangeably with C sharp and C double sharp as well as C flat and C double flat. He also explains that it is through "shades" that the term "color" comes in. "Color," he says, in the sense of red or blue has nothing to do with it. Thank fortune in this, at least, the eyes and ears are clearly stated as two senses in every way entirely different.

The word "color" is often used by painters to stand for sensitive *shading in color* rather than variety in colors.

Since there are but six primary colors, but a very wide gamut of shade and tint, the fine art of light-color playing uses scales based on darknesses and brightnesses for their accountable range. These are the logical supporting means of the play. Since the composer above mentioned thinks of the science underlying his composing in music as largely a matter of shades in a tone; in differences between contiguous vibrations, his calling his results "color harmony" has that sort of reverberation to a basic nature in color: in other words, its shade and tint gamuts, except that these are so few compared to the infinitudes in shades of color. It is an *imagery of speech only* but holding a suggestion nearer to a common in the feeling. In other words, not only colors but "color" in sound. Do not now

think, please, that I am seeking anything but a similitude in a point of view relating to two entirely different senses and concepts.

The fundamental that concerns us now and here is one on which far other true foundations may be raised. It is this: *That the scale of least visible increments with the elemental spectral band back of it CREATES A DEFINITE MEASURE FOR COLOR SHADE, COLOR TINT WHEREVER MET AND HOWEVER MET, as the eye sees.* That it, and it only, can at last put orderliness in that mystic maze made of the world of color.

It is not the province of this work to go exhaustively into this which is but a side issue to the matters in chief with which this book is concerned. It does pertain sufficiently to warrant a chapter being devoted to it. Please refer to Chapter XII again, "The Light Scale in Particular." This scale, you may remember, is an important part of the Sarabet console. It plays with light quantities that have been precisely measured.

In speaking of a "definite measure," I am meaning also an irrefutable basis for recordability; recordability by symbols also on paper made. It is a recordability something as the letters of the alphabet stand for sounds, and figures for numbers. In the matter of color, however, the basis is ABSOLUTE; whereas, letters of the alphabet were artificially shaped to represent certain sounds factitiously arrived at through common consent. Figures for numbers have their bases in fact that is incontrovertible. With them, it is not dependent on an understanding that is a matter of common consent.

### *The Road to a Definite Measure for Color Nuance*

There are those who have been prodded by this recent color consciousness, prodded in large by this labor, to suggest measuring color, via matched *dyes, pigmented materials*, and such other secondary transmissions of itself. These reckoned without their host. Such absolute measure must be found through the root of all color, its primal appearance. It must be found, in other words, it must be arrived at, if at all, through the primal, the spectral rays. The above suggestions, through dyes, indeed were not sound, indeed were not found operable or useful. They were intimated long after my patent covering a light scale.

It takes but a pin prick to collapse and deflate a sizable balloon. The capacity for penetration of the pin must, however, be accorded careful attention. There is no gainsaying the fact that the *number* of the primary spectral colors is known. Their *wave lengths* have been measured. Their *refrangibility* is understood. To subject these to carefully computed darkness and brightness gradation must give their veritable shades and tints, no matter where seen or how gotten. Their first, their full intensity selves would be the basis for any further record or measure. Matching of one dye with the other is by the way. It is unfruitful of the ends suggested. It excludes the root, the real starting point.

Light and its rays are *all the color there is*. To create the defined measure from the basic only can simplify the structure. Only this way, indeed, may the valid edifice be reared. There is a dictionary, so

it is said, listing some two thousand (2,000) names for kinds of color mixtures given to results gotten through dyes. It is safe to say the kind of everyone has been lost, never again to be recovered. It is footless to name an appearance not based on the correct unchangeable. The true may easily be vitiated in the process. It is the light rays, the spectral rays that must furnish the only right grounds for arriving at a right measure of color shade, color tint.

### *Primary Colors*

The word "primary" in the phrase, "primary spectral colors," carries with it, indeed, the sense of first or basic in origin. From this, the original, stems all color, color mixture, color shade, color tint. The six root colors, gotten by courtesy of light, have been isolated one from the other. The transparent dye formulae that can transmit them are known. The truth of their rightness is easily provable. Though they are primarily created by suns, they are induced by other means. Through artificial light they are reintroducible. They may, therefore, be registered for comparison. The possibility of naming these, of labelling them beyond mistake, is therefore a gift of nature. It is not arrived at experimentally.

### *Color Shade*

With putting definite order into *color shade* there enters in, however, the need for apparatus. Such scaling is not a gift of nature. It is not too much to say that, so far as the human eye is concerned, a light scale that, with mathematical accuracy, can be made to yield every gradation of brightness to the eye is such an appliance. A scale, movement across

which, in conjunction with other paraphernalia or accessory equipment, creates least increments of visibility, provides a definite and requisite measure for shade labelling to the eyes. Rays of a given color subjected to this means:—that at each scale point so many more of these rays are produced as will give a brighter shade of that color; and in converse, the darker shade of it. So may the darker or brighter phases of the self-same color be begotten. White light handled on such a scale superimposed on to the color must give its tint similarly.

Since every scale point is definite, since each has its grade number, its mathematical entity in the sequence, it must also carry an identifying number for each color shade and tint also. So every hue will be given an identity. A letter mailed asking for a wanted color number, posted to any place, would bring back the needed modification of itself without sample for matching. That is, of course, providing the same apparatus is there also or the matching already recorded for comparison.

### *The Definite Measure*

A definite measure for color, color shade, color tint gradation is made of those as register as progressively different on the human eye. There may be spectral rays of which the organ of sight takes no account. These would be beyond the daily utility of color and its fine art values. The posing of the theorem is worth application. The returns from putting into practice would be great. Perhaps nothing but a labor such as this could have brought it out.

### *Admixture of Primary Colors*

The admixture of the true primary colors is, as has been explained, also

capable of being made subject to the exact—subject to its own kind of scaling also.

The factors mentioned are cardinal ones; no pun is meant. Minor added arrangements are needed for laboratory purposes. These are in comparison to the start made negligible. With the chief needs as these have been provided, well-nigh any laboratory can provide the further wants. The experimental arrangements would be of a close space character. They would be made on a spot small. A registry on minute extension is all sufficient for the wider application.

What has been done, in conjunction with this fine art labor, brings application, here broached, into the clear and open ground.

We have seen in the foregoing chapters that for the true spectral colors and their secondary and tertiary admixtures subjected to every shade noticeable to the human eye, so far as the described scale goes, there are five thousand eight hundred and seventy-four (5874) color and shade variations held through the potentials of but 1500-watt lamps. This does not include the shades of still further primary color admixtures.

Even the spotting and labelling, or numbering of *some of these*, would extend a use into well-nigh every ramification of the world of affairs in general. A certain number or figure for a color true, placed on a piece of paper, could well bring back from the fair the exact color of ribbon she wants "with which to tie up her bonny brown hair." The suggestion, as a whole, entertains much. It comprises that, that cannot be ignored. It holds an interest to all those deal-

ing in this spectral ray phenomenon, and the indirect showings of itself.

### *Nourathar Must Use All Gradations of Color*

The infinitude in variety of human feeling can, in light-color play, spare none in the sort and kind of color which it is using as expression through itself. Any color value, every color value could well be available for the mirroring of feeling through the play. And this from the absolute of darkness to the maximum brightness tolerable to the eye.

An orderly art of expression by means of the spectral ray demands an orderly denotation for the medium, its mixtures, admixtures, shade and tint. Without such orderly marking, it would fall short of a permanent use. Its own grave would be dug. Such orderly denotation must follow the methodical arrangement.

How natural, that such all-inclusiveness and the notation by which it can be registered should be made to reach down to the dye and paint world also.

Looking backwards, it seems quite natural that putting an established way into the nuances possible to colored light for intelligent playing of them as emotional and aesthetic expression, should simultaneously make for a cleared systematizing for color labelling as a whole. Something must create the eye-opening point. It would otherwise lurk forever hidden; in its way forever tormenting.

The Sarabet instrument for light-color play has been finely thought out, scientifically constructed and with great care. One must use it to get the full comprehension of the truths I am writing.

It may be a question as to which is the loveliest fruit borne by a tree.

In the case in point, would it be the fine art means of expression or a definite utilitarian measure for color in its widespread use and value?

The laboratory worth of the Sarabet scale for color labelling was at its bringing into being unsuspected. It resolves a problem long wanted. It was one seemingly evading solution. Indeed, the perplexing mystic maze of color was never thought of as one with a true capacity for orderly marking. It was accepted as accidental, hodgepodge. The potent truth that its variety was recordable, measurable would never have come to the surface, but for the orderly instrument that shows the way. Aesthetic expression may be a small potato in the scientific mind. Small potatoes can turn up many a satisfying meal. Indeed, they are needed for that epicurean dish for which large potatoes are not the best.

The laboratory use of the Sarabet scale is circumscribed. It does not concern itself with that glimmer of a "light line" that announces that a germ or microbe consumes certain food vitamins for its health and stamina, as the man in whom it dwells does. Nor with those "lines" proving forms of matter on the stars. It does not reckon how a stone reacts to light, nor indicates by the blood color of an aviator's ear what his oxygen content is. These do denote the exquisite all-reach feeling in light. They have no other applicability here but those required by Nourathar and the indirect value the art brought about.

The spectral ray has the fine edge. Color in dyes, in paints is chasms wider. They are removed from the real thing. The "real thing" can furnish a measure for them and have

room to spare. Out of the root source of all color, the spectral ray comes the transcendent original. It has a super excellence above its indirect showings such as to make a dye man tear his hair with envy.

The color world in trade, in business, in manufacture is in a disorderly welter. It can well tire, confuse and perplex through its pathless network of endless color differences. Any suggestion that makes for order in its applications is a relief to sorepressed minds. Everything should be done to give the eye a surcease out and away from the strain carried by the labyrinthine maze.

The inventor seizes a tail that his innovation brings into view, and behold another animal and its head appears! This by-product result of the Sarabet scale loomed unexpectedly. Its novelty, as well as its need, is proven by not one but many witnessing facts.

The fineness and fullness of the inward nature, that called the soul of man, are of a calibre large and much embracing. It has edge of the finest. It is, indeed, as nice as it is broad and inclusive. Such as it is, it is a fitting pointer to other worlds equally spacious with *their* own all-embracings. Variety of color for the realm of expression! Variety of color, no matter where or how seen! One universal cannot help but be a spur to other results, whole and entire. *How could expressing of feeling through light color leave out any shade or tint?*

The branch result, which I am seeking to nail to some stable mast, is no short story. Thank the artist mind that has not always been given its just meed. This posed by-product, to the patented invention of a scale of least visible increments,

carries its proof of the careful, the scientific in fine art. The factors, I claim, are common to both a root and its branch.

*A notation for light color is a label for color in general.* From its very root nature this must be so. Orderly definition marks on paper for spectral color and its variousnesses make also for orderly definition through the same marks for all color. The light scale and its arrangements shut the door to the haphazard shown in the use of this phenomenon in general. If transparent color media are, indeed, minute crystals, such a start may well bring the "Crystal Clear" where least expected.

Did the light ray create the eye, or did the eye unravel and unfold color to itself? The "synthetic a priori" proposition that two factors were simultaneously present in the very first development of brain counts not here. What the eye now perceives as a variation or difference in ray quanta is all that matters. What a spectral ray wave measures also is not pertinent. What does matter to Nourathar and the color world as a whole is whether the perception from one wave length to another registers as a visibility to the sight. What the human eye sees as a color or shade or tint is all that tells. There may be, indeed, many dimensional light waves. This matters not in arriving at definite recordable measure for color, color shade, color tint.

*"Instruct thine eyes to keep their colors true.*

*And tell thy soul, their roots are left in mine."*

In Nourathar practice, the eye harnesses shades that they may ex-

press through their values qualities in feeling. Perhaps the color phenomenon makes for a mechanical movement within the brain. This may impress something as the movement of the brain, as a whole, against its skull conditions the character of aesthetic rhythm or beat.

### *Recapitulation*

1. The primary spectral colors are defined and basic.
2. The world of color, in its indirect transmissions through dyes and paint and further, is in a welter of disorderliness.
3. The shade and tint of all color may be subject to defined measure and, therefore, labelling.
4. The scale on and through which each least increment of visibility may be produced provides such an absolute measure.
5. By defined measure is meant focussing on each shade and each tint of each color that entity for recognition that needs not the process of matching for its attaining.
6. In this way a nomenclature for all color may be arrived at. This is something as the names of the alphabet letters are fixed, the marks for numbers, and other listings.
7. One result would be the ability of ordering a certain color by mail from any distance without actual sample.
8. The primary colors, in definite admixtures, may be in this way also subjected to numbering or labelling.
9. Some, if not all, of the many points along the light scales could prove valuable as an epoch-making start in the right direction.



# XXI

CHAPTER

## THE LIGHT SCALE MADE CO-EXTENSIVE WITH THE SPACE



**T**HE conception being written about uses light and its color as a means of human expression. The right logic of the word "human" in the sentence has been gone into in other parts of this work. The art takes account of light quantities, starting from their least. It does not omit the part of extensions within the space featured. The quantities take account of the seeing nature of the eye. The extension bears in mind the placing of the eyes in the head—the wide range of the complete seeing field of vision.

Increase, decrease are factors of the play made. This is so both as to the waxing and waning in the quantities of light as used, as well as the extension or reduction in the space extents these take account of in the unrolling or conveying of the light idea.

There is a dual accounting held in the above. It is that these grounds of the dynamic are used in an interior small or an interior large.

Both or either may require an extension to the scale quantities that have been described as minutely cared for, from the absolute of darkness up. The size of the auditorium

played in or featured may condition the extent of the scale for the control of which the means are to be provided.

Interiors differ in their sizes. Larger audience chambers mean multiplied eyes in the assembly. Though each pair of eyes sees 160 degrees from side to side, 120 degrees up and down, a collective range of greater numbers of people means extended cubic measure of interior to care for, by that expression in light that takes account of the whole wide range of the seeing field of vision. The scale for light-color play must then be extended in its scope by further addition to cope with or play on added amounts of illumination—as a kite may have tail ends always further fastened to its original pendant. Such addition is due, in varying extent, by comparative demand of the greater or lesser size of the space to which consideration is to be given.

I say "added to" the original scale means, because no matter how small, how large the church, hall, auditorium or room the *initial starting of the scale to the front* and so on further is always the same.

The scale from the absolute dark-

ness up has its unchangeable number of meticulously computed points. These are so carefully gotten because they cater to the rested response of the eye. Rested by the no light to begin with, the enlarged degree quantities in constant addition follow also the rule of coming by least degrees to the visibility. As the eye fills it needs more with which to see.

In my first patent application filed August 30, 1918, I show a means for handling large amounts of illumination by control of the sum total of the electric power that feeds their filaments.

Such a taking care of increases and decreases in the sum total of the light and color-give may be allowed a part in some installations. There is a unity in the result due to the intermixing of the rays through their very natures. This is meant for the climaxing of the whole.

The focal point is to the front. For the front, also, is used the finest gradation. It is, because the climactic effect is most complete when it surrounds the entire field of vision, that extensions of the light scale are in order. This is so, no matter what the size of the interior.

The enlarging of the amount of light, according to the extent of the increase of space played through, is difficult of description. I am referring now to the light, not to the means of control. I have used the cone as a simile for these additions that always include those already existing. The funnel would also hold the suggestion, since it, too, can be consistently conceived as enlarged at its open end, to which additions can be increasingly added without change of its prior definitions. In this, the point end of both cone or funnel

simile comes to the front, no matter what the cubic feet of the space is that is featured further along. It is this space featured further along that allows the light play to extend more and more towards the back to increasingly surround the field of vision. By these the waxing and complete climax are brought about in the effect on the eyes.

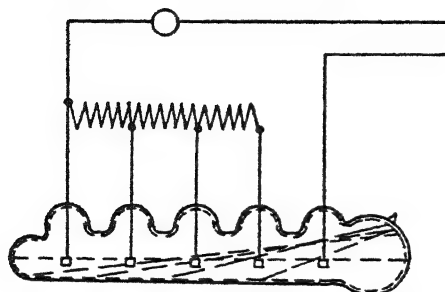
And in these extensions to first or prior definitions, it is the nature of the eye that demands and commands. An eye, completely rested by the absolute of darkness, will see minute least increments of visibility, whether in white or color. Then enters "the law of diminished returns." The eye asks for more in order to continue seeing leasts through the additions. This is fortunate.

The scale gradations, understood in lumen quantities, get progressively larger for such least increments of added visibility and ask for added tails to the original kite pendant, for their control, in the apparatus means. In this way the reaches of the scale of light to the eye may be indefinitely pushed.

The elasticity of the eye gets more and more jaded. Each added brightness point then represents light cumulatively added to. The least increments of visibility, however, are continued.

The quantities then of the light point by point, for these visible increments, are progressively increased. They also get *cumulatively* coarser, composed of ever larger lumen amounts. In my music studies in Vienna there was much said about a "full" ear. It was used in drawing attention to not attempting to practice on a jaded ear. An eye also gets

progressively incapable as to its seeing best as it is filled. A "full" eye needs ever larger light quantities to cause it to see added gradations that are of insensible increase to it.



FIRST THE INITIAL GRADING OF LIGHT BY ONE STEP TO EACH LEAST INCREMENT OF VISIBILITY: A. CRUDER GRADING BY ENLARGED SINGLE STEP CONTROL BY APPLICATION OF COARSER RESISTANCE

### *The Coarser Grading of the Light Scale Easier To Meet*

As to the apparatus for purveying to the cumulating, the coarsened grading of the light, the problem gets easier and easier to meet. The retina is then more amenable for the satisfying. The enlarged spaces may then be fed through scale instrumentalities less fine, more given over to the cruder "wholesale." The "difficult" exigent in the apparatus gets more amiable to rougher successive quantities of illumination that are fed by it as it gets presented with ever-increasing amounts of light to control. Its sensitiveness grows proportionately and increasingly less. Indeed, the moment arrives where whole lamps, without any benefit of resistance grading their filament capacities at all, may be lighted or extinguished as least increases or diminutions to the scale. With apparatus for featuring a continuous action, the light result, too, will be continuous and smooth.

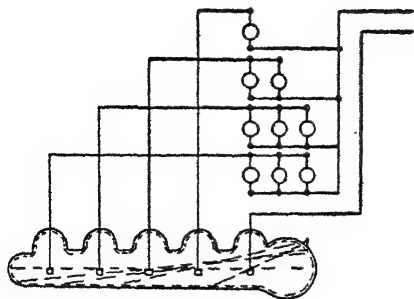
It goes without saying that before this point of whole lamps, lit or extinguished, is reached a coarser resistance in the electric current may be applied to make the result more gradual on need. Finally, resistance may be done without completely, and whole lamp quantities of progressively greater wattage may be lit or extinguished without jolts or jumps in the scale as a whole from least lumen-give to greatest.

### *The Manner of Increase in the Lamps*

At a point in the scales of initial least visible increments, the lamps used in whole may be of smaller wattage and greater number. Following may come still greater number of lamps to be handled till the bright lighting of the auditorium, as a whole, may be light fulfilled.

To repeat: For this increase in lamps, for this wholesale end of the light, there may first come after the initial scales on the console a crude resistance means for brightening or darkening them. After that, single lamps and even considerable numbers of them may be lit or extinguished without benefit of any resistance. These may be progressively added only as far as may be needed in the course entire. This, also, will be accomplished without jump in the light to the eye. Even motor control is not shut out. A cam control of a resistance slowing or speeding the motor action is not unthinkable.

To the Sarabet control centre should be added the means for meeting this needed or wanted added control. To repeat: Whether the increase in the illumination is likened to a cone or funnel to which additions are progressively made to their first and prior definitions, the scale starts



B. WHOLE LAMPS TO EACH LEAST PERCEPTIBLE INCREASE IN LIGHT QUANTITIES

with the least increments of visibility as these are to the *rested eye*. But no matter how enlarged the scale the least increments continue, though embracing ever-larger amounts of illumination point by point. Extensions to these fine beginnings in the playing scales by increase in lamps vary with the space. Added apparatus for the control of the further light must also become a further part of the instrumental means.

The apparatus for playing on these added lamps through extensions of the scale means may be of various sorts. They also must meet the interactive factors: mathematical, electrical, visual and muscular.

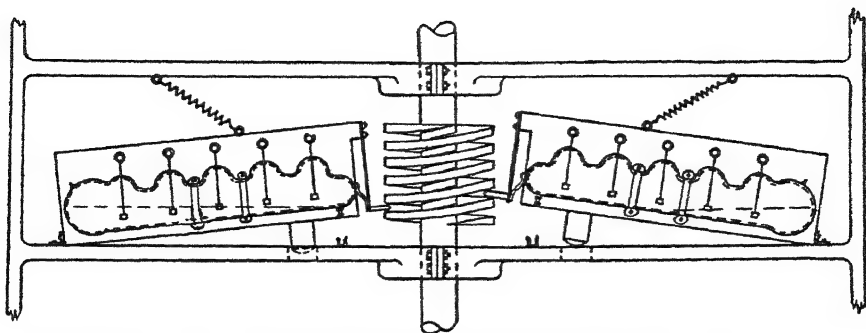
Each of these have their complicating say, individually and collectively considered. In my patent No. 1,945,635, Light-Color Instrument, I have shown at the back of the instrument arrangements for energizing or de-energizing successive whole lamp quantities by *one motion of the hand*. The potential of these, one by one, should not be too gross to yield at any given scale point the needed least increment of visibility. The device shown may serially bring on or reduce the lamps lit and, what

is most important, *by the one turning of a shaft by hand*. So the hand need not be lifted and no break result in the expressing continuity. So the hand motion may meet the timing, no matter how quickly the climactic moments are to be met.

Individuality in the control is maintained. One person may so pitch a light measure from his feeling centre to that of another in a wide scope of utmost breadth, and abide by the timing, no matter what the quantity to be set in motion. This help to the muscular capacities of the hand is another help to avoiding the cramped or crimped, or the travestied. It is a part of fine art expression that is to be made within and through moment succeeding moment.

More than one way of accomplishing this, the mechanical end, will at once come to the mind. One cannot, however, stress too often the many factors that must be *simultaneously kept in view*. The timing must be capable of tying all the light factors of color, of shade, of tint into not only one "rosette" but succeeding ones. A new interaction transpires between amount of light "tuned in" and the kind of muscular impulse needed. A changing speed, a quickened muscle, *with economy of motion*, is provided in the rotated shaft, or means that can equally well meet the necessity. Keep in mind any arriving climactic moment in dancing, in elocution, in music and the points made will be well visualized.

Other mechanical, other electrical substitutes will readily come to mind. From the detail light on through the wholesale is but *one scale*. There can be no break, either for the muscle using the apparatus, or the eye not-



C. DUAL CONTROL SIMULTANEOUSLY APPLIED TO OPPOSITE PARTS OF THE AUDITORIUM

ing the result, or the timing that must be called in.

By dint of turning a shaft, one hand can encompass much for an increase in the light brilliance *within the time it is wanted*. The muscular motion made is less than the competency of the piece of apparatus used. Much light may have to be brought up quickly or, on the other hand, less light slowly.

There are those who have said that the eye cannot take account of the fine steps of least visible increments represented and handled by the scale units on the console—that is, for the scale at its initiating end. They reckoned without knowledge of the power of the *reflecting surfaces to deliver*. In actual practice every gradation of these scales tells. On these surfaces the subtleties of color tell. Of course, without such proper fitting up of the contour interior, there must be a slipshod, slovenly waste of that which the material can and must deliver. There must be an utter want of competency in the interior not to show a carefully provided means for color sensitive result. It is blasphemy to the eye to say it cannot take account where given the right opportunity. In view

of the facts the libel to the eye is vicious.

Please see also my patents Nos. 1,793,284 and 1,854,547.

#### Recapitulation

1. The scale of light to the eye shows, point by point, ever-greater lumen quantities.
2. No matter how increased in its extension, the points still represent least increments of visibility.
3. The lamps played on for the initial end of the scale are to the front or focal end of the field of vision.
4. The scale is extended, also, according to the size of the auditorium.
5. The lumen quantities get broader towards the rear.
6. Coarser instrumentality may be used for handling the coarser reaches of the scale.
7. The point comes where whole lamps and groups of lamps may be lit or extinguished and still be part of the smooth scale as a whole.
8. The apparatus for controlling this extension of the light potentials must take account of the necessities for meeting the timing by the hand or foot muscle control.



## XXII

CHAPTER

## EVEN THE "HOUSE LIGHTING"

**E**VEN the general utility lighting of the hall may be turned to account at the highest light climax; though this be but the bare white of the light. For it is to be remembered that colored light tends to white in its brightness and so reaches to this at its expression climax also. White light is the sum total of all the color rays. These, therefore, mixed together, as a whole or in part, would have a bent to the white. So that

which is the sum total of color brought in at the culminating point or points is not amiss to the general nature of the medium and its use as an art. It is the apogee, the strongest of the dynamic range.

These utility lights, used at the right moment, could be of value even though bare of anything but the bulb itself. To surround the field of vision includes light in every direction. Rays striking where incon-

venient for the eye to see get refracted back. They help the general reverberation. The eye is a roving, alert organ. It will cover more than is expected even without this deflection. The ray angles of incidence and evidence of a general lighting help a universal effect on the seeing field of vision. These sources used and installed only for their everyday serviceableness may be called in with profit to the light color played for its expressive ends only, should no other alternative be at hand.

### *The Mechanism for Including the General Lighting*

But in the case of employing even this general utility lighting for the purpose alien to it, it must be put at the instant behest of the artist at the console. Extension of the house-lighting lines may be brought to the play control centre where electric buttons or other arrangements may put them into play as, or when, wanted, or returned to their panel. Lacking these an attendant may be signalled to for this helping out. This latter plan is lamest and only to be turned to when extensions of the lines are not available, difficult or too costly.

Light-color play, in the viewpoint here set forth, is used in several progressions: from dark to light and vice versa, from color to white, from less space to greater space. There are other ways by which the light play increase and decrease, in the effect wanted, may be made to continue in course of its action or development. As for example: from front to back, or back to front, from low to high, and so forth, as the waxing and the waning context of the emotional growth calls for. To turn the gen-

eral lighting, also, into account may save some installation or equipment expense or both. In reading the above, it is important to visualize these points used in the furthering of the expressive ends as done with artistry as the results aimed for require.

An early insertion of a differing resistance element within what were formerly pieces of powerhouse equipment was done on my launching this invention. The gradual turning on and off of the general utility lighting was quickly turned to after the launching by myself of this art. This was resorted to in well-nigh any interior: those of general purposes as well as in places of entertainment. This arose through two reasons. One was the imminent necessity for scrapping the factories that turned out such plates of powerhouse adjunct for commutation of such lighting current. The more perfect automatic control of the powerhouse output brought this about. The other was a rather lame attempt to seize some flavor of this fine art by grabbing it by its hindmost tail. The first reason given more or less explains the second. The change made was one of suiting the eye rather than suiting the dynamo. This indicates the specific difference.

Some use was eagerly seized upon for the commutator switchboard getting rapidly obsolescent. The powerhouse current needed these no longer to help in stabilizing power rating. Unstable power before this automatic perfecting of the control could easily destroy the lamps through breakage or sudden wear and tear on the filament. The new use was a lifesaver to these factories. It turned a spigot-like converting into an eye

dropper. The spigot, we will say, stood for the powerhouse giving. The eye dropper accommodated itself to the eye. Powerhouse current, without the modifications needed by the character of the lighting, was, indeed, a source of fear—witness the cast iron and cement that enclosed wires so much larger than the filament they were to protect. It was not control of the light these were after, though to be sure the light's stopping short of its brightness high proved that which the ohmic computation lacked.

Spigot and eye dropper are two entirely different "arts" as the patent attorneys express it. The temptation to switch the use from the one end to that of another was great. It was done. But not without a practically complete alteration of the unit to fit it to an entirely different purpose.

You will remember how valuable such house-lighting climax early proved to be. Well-nigh every vaudeville or other act used it for stimulating increased exit applause. It was the switching contraption turned to this new account. It was turned to purposes of expression when formerly it was but a safety gadget. The change allowed of the current being fed into the house lights in a delayed leading. It was the end of the expression story gotten out and used for gain in utter disregard of the head, the full reality of the matter that was the art. The more bulbs hitched to the unit, the less light of course.

Amusing tales abound as to the expedients that were resorted to in the earlier days of powerhouses for adapting the current generated by these to certain incidental uses: by

travelling "shows" and such. These ranged from inserting bed springs in the line to barrels of water. Anything, indeed, that would ease on the current and prevent it from destroying equipment to which it was not primarily suited. I remember distinctly, early in the days of my own experimentations, being told to put a clothes pressing iron within a line to reduce its capacity.

The very nature of these switch-commutating plates proved their hit-or-miss character. They consisted of two interlocking circular cast-iron lids. Within these was much cement and within the cement the wire that was to ease the inflow of the powerhouse current on the shorn lamb of the little electric bulbs of the day. The cast iron, the cement all showed the lack of exact computing in the resistance element. It showed the fear of disaster, of fire. If not thoroughly boxed in the manner mentioned harm could arrive through overheating. Their purpose was precisely that of the bed springs, the barrels of water, the flat iron before mentioned. It was no more, no less.

My invention (patent No. 1,357,773) of a unit through which least increments of visibility, measured both to the human eye, the computed lamp value and the electric current were made. The broad claims were allowed me. This gave these commutating plates a new lease of life through appropriation of the provisions of the above patent turned to a use not primarily theirs.

Many an auditorium began to have its general utility lighting cut down or built up in *some sort of* light intensity change by these units otherwise obsolete. Indeed, I see by the daily paper of November 21,



Fig. 7.

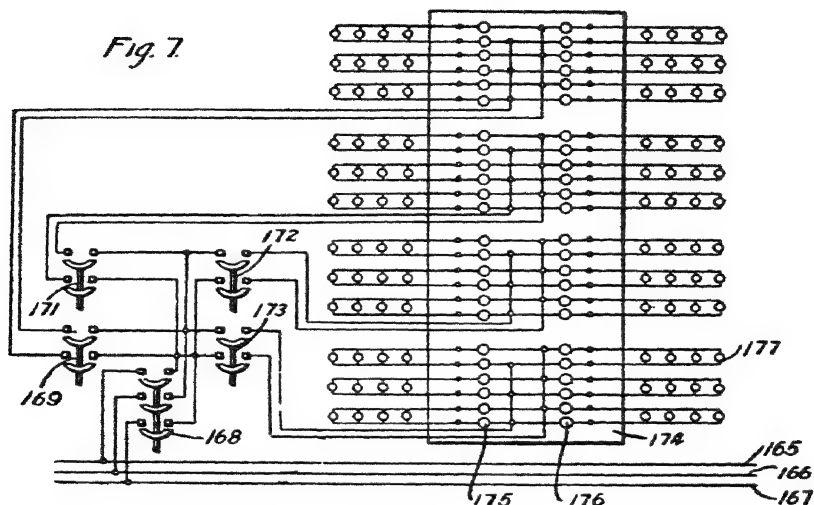


Fig. 8

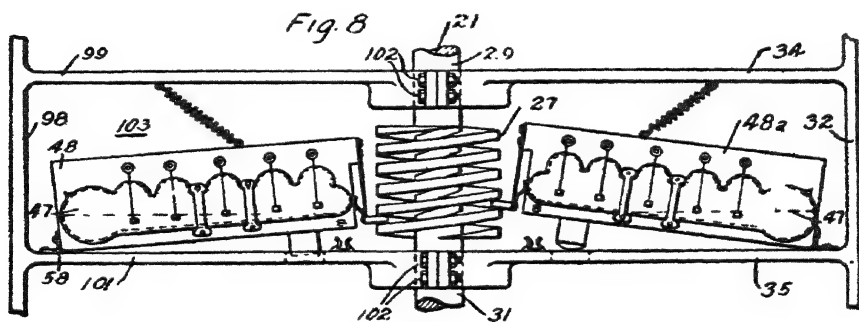
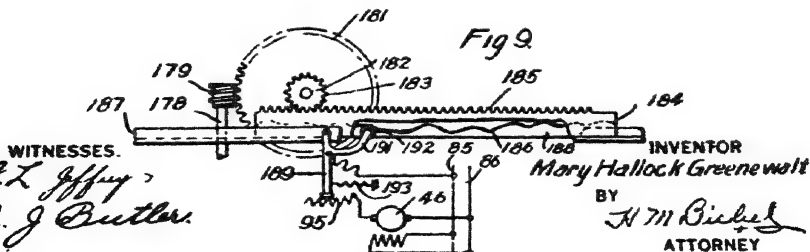


Fig. 9.



WITNESSES.

*B. L. Jeffery*  
*A. J. Butler*

INVENTOR

Mary Hallock Greenwalt

BY

*H. M. Bichel*  
 ATTORNEY

IN FIG. 7, A WIRING IS SHOWN FOR A PLURAL NUMBER OF WHOLE LAMPS TO EACH INCREASED VISIBILITY. FIG. 8 SHOWS OPPOSITE OR DUAL HANDLING OF LIGHT QUANTITIES SIMULTANEOUSLY. FIG. 9 SHOWS A CAM CONTROL TO MOTOR ACTUATION OF INCREASED AMOUNTS OF LIGHT QUANTITIES. THIS LATTER EXPEDIENT COULD WELL BE USED IN THE AUTOMATIC REPRODUCTION OF A LIGHT-PLAY SEQUENCE PREVIOUSLY CONCEIVED AND PLAYED BY HAND AND FOUND USEFUL IN SOME CONNECTION OR CONJUNCTION

1944, that London now rejoices in a modified kind of lighting not due to worn-out electrical equipment. It was of a moon glow that enabled pedestrians to make their way about most of the capital without flashlights.

Promoters and builders of theatres then hitched colored bulbs to these general utility lighting circuits. Without knowing in what manner these colors could spread, and with an entirely faulty notion that three colors in widely separated spots could mix. These installations made pretence to *all the colors*. The "three colored auditorium lighting" was made to come about via the described route.

This was a stepping in where angels should have feared to tread. As a matter of fact the white of the light, being color's climactic sum total, could well have dispensed with this picayune attempt of color blemish. Wiring could have been saved and muscular capacity to actuate the means helped. An easing, a consideration as to these two factors, is of considerable weight. I do not include in this a comprehensive and full light coloring of the auditorium entire. That, also, has its own charm. But it is a very great luxury, even to the fine art of light-color playing or Nourathar.

It is entirely a matter of history that it was labor, with its largest view, that brought about the innovations mentioned. The dating is clear. I am not making statements that cannot be entirely substantiated.

One episode is worthy of record. It relates to an electrical engineer, a gentleman of international renown. He is reputed to have balked at going along with the ruthless attitude towards the individual of the mam-

moth company of which he was chief engineer. In his instincts he was socialistically minded.

His brain was mighty, but he himself, alas! in his physique, was pitifully misshapen and undersized. His misfortune probably made his heart the bigger and kindlier. He had been one of the many nationally-known engineers present at my demonstrating disclosure made at the meeting of the National Convention of Illuminating Engineers at the Bellevue-Stratford, Philadelphia, September 12, 1916.

The performance interested him and he asked me to come to see him. I had travelled many miles to keep the appointment. He wrote he was interested in my work.

Seated next to him at a table in his office, he turned over the sheets of my mathematical computations and specifications for the manufacture of my light and light-color play scale unit.

He was impressed. "Who did this?" he exclaimed. I answered that I had done it. That it had been done under my direction at every point. When he recovered he exclaimed: "What! you insist on a lengthwise action when the electrical conviction has been for a circular form?" I, petrified with fear, lest my plans for seeing my scale in a well-made unit (for I myself had made one before) go awry, almost shrieked: "I'll take a round one, I'll take a round one!" as though it were a matter of a ball or an apple. I remember still the look on his face and this was many, many years ago. I know now that what it said was: "This woman knows that her figures may be incorporated some way or other in our units rounded of form." I know now

that, that was what "they" were after.

Nevertheless, the sense of justice in this one man standing at the head of a long cue of other men, not seeing eye to eye with him, as to what social justice demands was such that he did have a beautiful unit made according to my drawings and figures and lengthwise of form. At the time I was much impressed that a man was specially sent by train to bring it down to me. The result, it was plain, was considered of noteworthy value.

Since "social justice" has been mentioned, it may not be amiss to drive home a sociological point here. It is said that there are as many as septillion cells in one human brain. In a singleness of an inventive vision these septillion cells work in common to the one end sought. Housed within a single skull, they have every opportunity to labor and act in a community of close co-operation to a unified end. Sometimes such an end is brought into operable being through boundless effort: a lifetime's seeking, sorrow a-plenty and if a woman, of course, tears.

The employees of the hugest concern number but hundreds to the thousands of cells in the one brain of the inventor—the innovator, the pusher forward of a hugely potential era—who is making a worth-while newness. The body politic is woe-fully criminal towards humanity as a whole, humanity now in existence, humanity to come, when on the excuse of "quantity production" it robs the individual of the fruits of his vision to the discouragement of all such effort. *Septillion employees can never bring about what the septillion*

*slaves of humanity in the form of cells in a single brain can bring about.*

### *The Light Scale Scope*

To the eye adjusted to complete darkness, the least initial glimmer of light is potent and plain to it. And this, whether in the smallest hut or largest of auditoriums, seating thousands. A candle rush, a match lit in any interior, large or small, speaks its presence even indirectly delivered and this beyond peradventure. From their immense distances the stars may be seen. An aviator, a mile up, notes a lit match on earth. For war "black-outs" any point of light was taboo. This art commences at darkness, not at what might cause disaster if the high brightness is not shown as modified.

The detail degrees of the light-playing scales, either in white or color, follow the light's least initiating point. At start the degrees are finer than the flame of a match or glimmer of candle. At end they are of single whole lamp quantities or a plurality of them.

For some reason or other, the prodding of the eye to the widest scale limit it can tolerate reminds me amusingly of donkey driving in some parts of the Orient. A sharp pin or needle is part of the driver's kit. Poor patient Griselda! She gets jabbed in her anterior protuberances as a part of the "boost your traffic club" campaign. It is footless to press the eye further than needed. It cannot be said that an eye balks as a donkey might. It has lids to close. It can be wheedled if not "needed" into feeling through largely increased light quantities that are not disagreeable to it. Its tolerance to smaller quantities, however, gets exhausted. It

asks for more as a prod. It is not a matter of what will shorten the life of a filament. It is a matter of the tolerance of the eye, not a wire. The art reminds of a musical instrument but strung with human hair.

*Bird's-Eye View of the Scale as a Whole*

Now to fly before you the kite of the light-color play material in a summing up bird's-eye view. I am so in hopes *you* will want to fly in art with and through it. Here, then, is its original pendant and the extensions to this that we have likened to a kite tail with other additions as wanted or needed.

1. There is first the complement of the twenty-two 1500-watt lamps with their finely computed least visible gradations. These are played on by and through the three scale units on top of the instrument.

2. Following, and further, lamps may have their current fed in in cruder resistance intervention.

3. After that a small number of lamps may be switched "on" or "off"

without any resistance mentoring at all.

4. After that a greater number of lamps or series of them may be similarly just switched "on" or "off."

So the fine and the not so discriminating tolerance of the eye is met. The first increases are up to thirty-three thousand watts of illumination. For these and beyond these the gradations for visibility are compounded. At a point entire lamp bulbs may be energized or de-energized without benefit of resistance or with benefit of these either and still meet the wanted progression in amounts. After these, whole series of lamps may be called in, similarly. All in a smoothness as a one *scale*, from beginning to end, without jumps to the eye. The enlarging space offers an added factor to the continued and, perhaps, quicker and larger compounding of the light increases for each scale point.

It matters not how small, how large the auditorium. More of the scale's extension factors may be used or less.

"Belovèd, dost thou love? or did I  
see all  
The glory as I dreamed, and  
fainted when  
Too vehement light dilated my  
ideal."

# XXIII

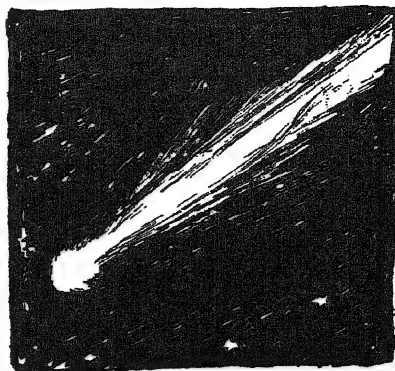
## CHAPTER

### THE POSITIONS OF THE LAMPS AND THEIR NUMBER

NOT a single sun driving many planets, but an aesthetic impulse reining a miniature galaxy along is the Nourathar picture. The feeling centre of the artist, seated within the potentials for breeding emotion held in the group of brilliants, urges these under his hands into an expressing significance through their light played on. It is a language based also on a common understanding. It is the light ray speech in a so-to-speak mystic thinness. Not so thin but that it drives the Universe of feelings also. To sensing that is of the human body, there is that which is lusty. It is a world of which we know. It is a world through which we can inform each other.

#### *Comet-like*

Star-like nuclei with still more nebulous trains — such spreading comet-like arrangement—do these little artificial suns set forth and push forth in their placings. The spear-head group is of larger and closer lamps to the front. The train is of other units dotted away to the back. Is it through the “more” and “less” progressive ranging that the Great Artist is sampled as playing through nuclei and tails of comets in the skies? Is there any deeper unknown



simile, to the one within walled world of an auditorium on which the human plays?

What common language may both have? If any?

#### *Scale Made Plainer*

Through visualizing the lamps and their positionings we can picture the scale all the plainer. For these, steps to aesthetic ascent are vested within them. In golden threads the artist spins them out with meaning and weaves into a fabric of sensibilities warm.

#### *The Light Indirect*

First to the front is the contingent of the twenty-two 1500-watt lamps. Some of these may be divided, for reasons of space coverage and color spread, into three 500-watt ones each. They turn their backs to you. For like the resplendence of the Great Face, one dare not gaze directly upon them. They are too lustrous for looking into without intervening agency for indirection of their light. Their brightness must come second hand led to the eyes.

The middle one is the leader. The rest of this choir is spread out behind, towards the audience receivers. It is the head lamps that are played

on through the three scale units atop the instrument. Their every degree of brightness is made available through these scale points played as the sense to be conveyed wills and says.

In them we have the peak of the cone or funnel from which the starting of all the light and color scaling stems. These twenty-two entail the detail lumen quantities held progressively in thirty-three thousand watts of illumination to the human eye. That is a great, a substantial presence to do with. It has been given a tangible measure. The finest gradation for the concrete effect has been wrung out of them through this work.

### *The Twenty-two Initial Lamps*

The twenty-two high-power initial lamps begin the scale, no matter how large, how small the auditorium. They may be in themselves enough for many a goodly sized audience chamber. Still larger spaces get lamps added to these in extension.

### *Lamp Placing as to Color*

A curve in the wall fronting the eyes is a help to the smooth diffusion of these first rays. The head lamp at the very centre of such a rounding should be equipped with the multiple color changing mechanism, controllable in its color changes before the one lamp, from the console. This allows of differing rays of the spectrum being made to impinge at will on the one portion of this forward space. It is an extension of effect not altered by the contiguous positioning of several single lamps of the lesser wattage placed side by side. There is an asset, however, in one lamp doing the color duty of what other-

wise might be six or five. There are arguments for the using of three 500-watt lamps in the place of one 1500-watt one. Experience will show.

The placing of the remaining twenty-one range away from the central lamp. The particular colors delegated to these take account also of the relative quantity of their rays in the color cycle. Twice as many or more for blue than green, and so on.

There are other considerations as well. Among these may be mentioned which of them is to be placed at a middle distance, somewhere between floor and ceiling above, and which close to the floor. The secondary and tertiary filters get their due considerations in this positioning, of course.

Should 500-watt units be used rather than those of 1500-watt capacity, there could be as many as sixty-six sources available for distribution as to space and color considerations to be played on by the detail scales alone.

The 1500-watt capacity in the single bulb is to be preferred. The color rays are much greater in the higher power lamps and there is a *quality* lost when bulbs of lesser wattage are used. The higher the power of the lamp the nearer the quantity of the color rays comes to equalling each other also.

The popular statement as to the proportioning of the color rays in artificial light is that there is one violet ray to every three of blue, to seven of green, to fourteen of yellow, to twenty-one of red. It is said that in sunlight the quanta of the different color rays is equal. It is probable that this mentioned distribution does not now hold in the high-power bulbs developed in modern times.

### *The Closeness or Distance of the Lamps*

Another consideration hangs on the fact that the closer the lamp to the space lit, the stronger the color produced. The rays begin to diverge away one from the other the moment they leave the filament. This furnishes still another form of the "more," the "less" which the good artist will know well how to utilize in building up his effects. The rays from a light source placed further away can give an initiating broad spread to the field to the front that can make a very exquisite groundwork on which to play up the stronger substance of the color statements to be made.

Every inch that the lamp is distant from the space lit, the paler or more subdued the color. Like all disadvantages this fact can be made to carry an advantage since a larger area is covered as the lamp is placed further away. To cover evenly larger areas is an asset to the play that cannot be neglected. This does not exclude the sharper smaller impingements.

### *Color Changing Mechanisms*

Plainly it is ideal to have a color changing mechanism as an adjunct of every lamp used in the strong, the starting point of the scales at least. The unequal color proportioning and many, many other circumstances can, through the greater color wealth provided by this added equipment, be overcome. Using the expedient may prove less expensive than multiplication of the lamp units with their mountings, reflectors, bulbs, etc. The color changing devices for a quantity of the lamp heads have already been used.

### *Positioning of the Lamps*

At best the positioning of the lamps for the maximum result is a matter of ticklish consideration. Its importance is equal to the matter of the number of the lamp units that can be made available. Experience and practice will make the number and placing of the lamps universal and *standard*. This standardizing is especially to be aimed for. The benefit it would be to the notation, for recording on paper light plays once conceived and played, is patent. For a universal means of expression, the apparatus must be of a common uniformity.

The central light may well be flanked by two, one each side, then three further back, then five, and so further. Some high to feature even the ceiling, some at floor level.

In one installation of the Sarabet a very restricted amount of electric current only was available. It allowed but sixteen lamps of 500-watt capacity each. Sixteen 500-watt lamps to the three detail scale when these alone could have rung their changes on sixty-six!!

The sixteen lamps were positioned as follows. (Please see cut.) The interior was a small chapel.

1. The centre color changing unit.
2. Two simple one-filter units flanking this. (3)
3. Two simple one-filter units over the chancel doors. (5)
4. Two color changing lamps beside the chancel entrances. (7)
5. Two simple one-filter lamps one in each corner of the nave. (9)
6. Four simple one-filter lamps featured the glass altar. (13)
7. Two white spotlights in niches towards the entrance doors. (15)

8. One color changing lamp with focussing lens on a stand between the entrance doors. (16)

Whether the electricity was restricted in the hope for a "debacle" or not, the result was astonishingly beautiful. This was, of course, thanks to the silvered surfaces carefully provided. Sixteen units out of a counted-on sixty-six might have easily spelled disaster to the result had this surfacing not been provided.

The more restricted the number of lamps available the more the forward end of the auditorium only can be featured. Such a placing allows of individual hiding of the lamps that can well enhance the appearance of the interior. The backs of the units are turned towards the beholders. Any camouflage or none if the reflectors be of charming outward design is acceptable. Few or many, it must be remembered, that the all-important units will have at least the white utility lighting of the place to help out. This was the case in the installation above mentioned.

The light-play artist will hanker after a large complement of lamps. But he can do much with a few. Mind over matter can supervene to its degree here also. It is not absolutely necessary to have the full complement of lamps to do with. The color covering of the spaces featured should as much as is possible be continuous. The darkness, brightness change is the chief tool of the expression scope. This fact will excuse, will make up for many a lack in quantity.

The size of the auditorium would govern the addition of high-power lamps to those mentioned. The scale means governing these additions could be of cruder resistance. They

could be either mechanically directly or electrically indirectly controlled via known ways for remote control.

To use colored stuffs to help the color showing is a weakness; it is a dishonesty that defeats all the ends. Such cowardly makeshift tends but to disorderliness, clutter, and confusion in color accountability. It makes dependable recording of the color expression an impossibility. The blank sheet of the neutral colored metallic silver-grey surface is a basic need. It is strictly neutral.

Should playing the auditorium as a whole need further light, series of added lamps or light sources may be handled in various ways. Still further beyond these whole lamps and series of lamps as well may be switched on and off without benefit of any modifying agency. A contrivance that can allow a handling of these by one continuous muscular motion of the hand or foot or indeed by motor is invaluable. Please see my patent No. 1,854,547 for Motor Actuated Switches.

In this way the ever-enlarged cone or funnel of light may be brought about. The lamp placings will follow the diagrammatic plan of cone and funnel shape either.

Remember how accenting the climax of a musical composition by this whole light brightening must time with the conductor's quick beat of baton. It must be done "on the dot." The farewell bow of the vaudeville artist is in its way just as exigent as to the timing of this brightening of the light. Sometimes the beat is a shade slower, sometimes faster. The piece of apparatus that handles this lighting must allow the hand to be equal to this timed arriving of the light sum total, or its retarding.



*The infinite variety of color, shade and tint rests chiefly in the detail control.* This, however, finally reaches into the wholesale featuring of the wider spaces. There, both results and apparatus are of broader sort.

The whole is beyond measure worth while. This has been proven without the doubting. One finds one's self living in what may be called an intelligent opal that stimulates the colors of the feeling self. Through it the artist at the console wills a fellow feeling in those there to see. He does this through a medium of transcendent beauty. He has at hand the widest possible gamut for suggesting human emotion in all its variety through a medium of rare essence and conspicuous glory. "For my soul's eyes? Will that light come again?"

Conceptions through Nourathar are made by creating nuances of light in a progression. This progression is within the cubic measure of the space played through. The progressions can be of infinite sorts.

No one can now take exception to the soundness of the vision. On numberless occasions, before multitudes of people the gradual brightening of the light has gained the response of heightened exhilaration, excitement, happiness. That a lowering of the light brings quiet, peace and restfulness is testified to by anyone pulling down the window shade of a room for its healing beneficence through the eyes. This needs no proving.

Words put it all too simply. The qualities and values in color are well-nigh infinite. They are a fitting stuff with which to match and suggest infinitudes of grades and shades of feeling. They have been able to do this through proofs too many to mention.

## *Recapitulation*

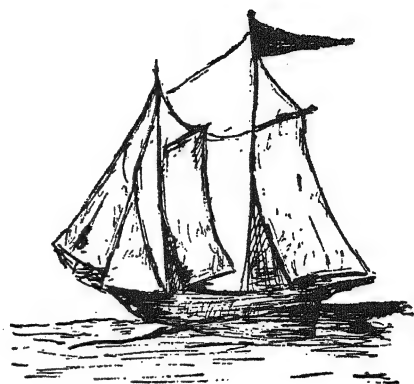
1. Light-color play is a matter of progression, of the "more," the "less."
2. The lamps and lamp-head units are also progressively distributed throughout the space featured.
3. From having two hundred sixty-seven gradations available through each initial lamp, the scale may finally use whole lamps or series of lamps as part of increase in the graduated scale.
4. This wholesale progressively bringing "on" and "off" the light in large increasing quantity has to be done by apparatus actuated by a single motion. It may have to be too quickly consummated for detail attention to each lamp or circuit of lamps.
5. The lumen amounts for each point of the scale are mathematically and progressively computed. Due to the "law of diminished returns" the tolerance of the eye to and of these increases and decreases is the factor, no matter how extended the scale.
6. The number and placing of the lamps should be *standard*, according to and the same, no matter what the size of the auditorium featured. This makes for stability of the art and its recording on paper.

The sample arrangement portrayed and spoken of here as having been installed and used is but one example, one specimen. Fragments of the console's whole capacities can often find place. Larger places demand or ask for larger fulnesses and completeness, up to the worked-out capacities of the instrument in full.

# XXIV

## CHAPTER

### SUMMARY OF THE INSTRUMENTAL MEANS



**I**NTANGIBLE factors that are part of the human body itself condition forms of this instrumental means. The kind of muscular action of arms and feet, the perceiving ability and seeing scope of the eye, the light in consequence dealt according to the space furnish some of the interactions that are met by this organ for light play. Studies in many sciences have contributed their part in the creating of this piece of apparatus. Some of these are: physics, chemistry, electricity, mechanics, even comparative zoology, and further, have had their share.

I have given the name "Sarabet" to this agency for play. It consists of a console control centre and the light sources it may be made to control. These light sources I have called the Nouralions.

Scale playing units were devised. They were arrived at according to characteristics universal to the human eye, taken account of in conjunction with various other interactive considerations, some of which have been set forth. Playing with darkness and brightness is a basic necessity of the art and so of its

instrument of play. These the scales were constructed to meet.

The darkness and brightness scales play through adjuncts that are productive of the ray color.

What must be, in the very nature of things, minute crystalline forms, known as transparent dyes, are made to impregnate thin sheets that, fronting a lamp reflector opening, transmit the color rays wanted.

In these the true primary, secondary and tertiary colors of the spectral circle have been differentiated. They are filtered at will by the above-mentioned transparent media. Intermixtures of these full intensity colors may be furnished and played upon. Such admixtures may be further admixed.

Such orderly color consciousness inaugurated the first steps towards arriving at a definite measure for all color, spectral or pigmented.

The light color is produced through the lamp-head units or Nouralions. Each source may be delegated to one color, or several colors may be attained through the one lamp at choice. In the latter case an apparatus moved by remote control from

the console changes the position of the color filtering mediums for getting any one of such variety as wanted from the self-same source.

The disposition of the lamps brings its particular considerations. Their form of housings may be made into an added beauty of the interior. They may be hidden.

#### *The Light-Scale Playing Unit in Particular*

The figures for arriving at the playing points of the light-scale unit considered a threefold interaction. These are: the degree-seeing capacity of the human eye, the light emitting grade potential of the lamp, the amounts fed in of the current to meet the result. Minor factors accompanied the prime considerations.

The scale-playing unit as made and described is fundamental as to these considerations.

#### *Foot Control of the Scale as Alternative to the Hand*

Since the number of movements or plays the hands have to make is great, alternative pedal foot control has been provided. These can be resorted to when the hands are otherwise occupied.

#### *The Scale Extended To Meet the Full Space Featured*

The scale from darkness up can be extended to fill the interior. Such cruder increases have their own form of control. Such may well be handled by various means: by rotating shaft, electrical influencing of the sum totals of the individual currents used, or even by motor.

#### *The Rotary Actuators*

The rotary actuators are electric current routing contrivances. They

allow three scale units to do duty for a far greater number of the light quantities than each can use.

The rank of rotary actuators involves novel electric wiring of which a diagram is shown.

#### *A Definite Measure for Color Shade, Color Tint*

The instrument used as a laboratory tool brings about a start for giving a definite measure to color. And this not only to light color, but color gotten through pigments.

#### *The Scale Extended to the Space*

The light scale, always the same from its initial point, may be extended to control the lighting of larger spaces as wanted. Even the ordinary "house lighting" may have its uses in highest climaxes of white light brilliance.

#### *The Number and Positioning of the Lamp Units*

The number and positioning of the lamps should be standardized. Doing so helps the accurate recordability of the light-play compositions conceived and played and considered worthy of such perpetual record.

#### *Color Media Motor Control*

Motor control for changing the color media in front of the one lamp and means for signalling the positions of these are at the console.

Leads, plugs, large potential switches for the incoming power and other routine electrical gadgets may add to the control as a whole.

#### *Manufacturing and Installation Drawings*

The manufacturing and installation drawings for the Sarabet complete are

in existence. The wiring diagram is here given. The huge labor entitles all these to a careful and respectful consultation, use and consideration in manufacture. They make description and show the way in a manner more complete than can be done through words. Sample units are at hand to be seen and consulted for any further engineering needs.

The above summary gives some of the high vantage points of the Sarabet instrument being written about. They are representative of much at its highest and best. Such a means may not obtrude this and that which can be obstructing to fluidity of expression. To hinder may be as disastrous as to deny. Mechanisms for the purpose may sin grievously through commission as they can be virtuous through omission.

This part of the writing describes the fundamental necessities to the unit entire for playing with light as a means of human expression. It is the light palette. The artist creates the combinations, such and such as he wills: autumn leaf or scarlet sage. He holds *the* potential that colors the world under his hands and feet. Being a prince among men, he should. He sits the organ of play as a man sits his horse, one with it.

### *Problem Solved*

Successful performance, and the immense exchange created through performance, makes plain that the problem was properly and operably solved. The method of causing the right functioning and its fundamentals is herein described. They furnish the only way by means of which the problem could have been solved. To this many inoperable failures attest. Coarse equivalents of this right

approach have been made. The best is none too good.

The problem was met after many years of effort. The originator was equipped with the training as well as the needed supporting and underlying learning. Knowledge is, after all, the stepmother of invention. At backward glance the myriad factors to be kept simultaneously in view seemed well-nigh insolvable. The way has been fashioned *by dint of which two hands, two feet are commensurate to a task dealing with that approaching the infinite in variety and number.*

I doubt whether anyone, whose lifelong training has not been in the realm of aesthetics, could by any possibility have accomplished the feat. Feat it is. Moreover, it is to be doubted whether anyone not an executant artist at an instrument for timed production could have gotten the vision or its right way of solution. Muscular co-ordinations necessary to the handling of a fine art sequence had their say. And such co-ordinations called for special considerations in the instrumental parts.

The interactive problems and facts interacting had to include the infinite variety of color at its spectral root. This was color's primal strength. It was a strength at its zenith from whence its origin is derived. Expression is its sublimite.

One essential fact was that the color rays needed a prepared ground for their registering. The right results were resolved largely by help of such reflective surfaces.

Physiology in more than one direction entered in. The muscular reach, the control possible to hands, fingers and feet; the timing rooted within the body's mechanism, the continuity

and the interactive continuities all bent to a unity of result; the flexibility, the noiselessness, the approach, the touch, all these have shown their part. They are by no means all. Think how long it would take just to read a painstaking enumeration and description of some of these. Consider the long road traversed. It has been so well covered that much definition is possible in comparatively speaking few words, considering the length of time taken in the evolvment.

The numerically immense number of the variousnesses held in the nuance of color, *all of them* not only some, were needed for matching the infinite variety of nuance held in human feeling. This came first. The matching of these from moment to moment and at will comfortably seated, all the faculties at attention, is another centre of the labor. The conception is too fine for paraphernalia at which, as in so many theatres, one yank is given, one pull and the "fine" in fine art be damned. These latter makeshifts are of utility, not expressing art. At the very least they are destructive of a vision that has every reason to live.

Electricity itself is so wide a means to so many ends. The purveyors thereof cannot possibly be expert in every direction. But because it is so wide a means to so many ends, its cohorts are everywhere present. They, unfortunately, often are like lice in the inventor's hair. They hear at once of what is being done. They should be wise enough to leave the fields to the owners thereof. A great harm may be done through appropriation in part when, what is, should be taken in whole. And what

a cruelty to surround with saliva and then swallow ("avahir puis avalir") the individual from whom they are borrowing his all. Because their bread is so buttered is no excuse. Nourathar, it is plain, has suffered much but it is kind.

Beginning as it were at the back door and moving towards the front the chief parts of the instrument are as follows:

1. *A large switch or circuit breaker* or similar device of a capacity equal to the amount of electrical current utilized in full by the Sarabet installation. The circuit breaker form may protect against the ravages possible through powerhouse inequalities and irregularities, as such may still obtain.

2. *The lamp choirs.* These are, of necessity, distributed throughout the space featured. They are at given distances from their control point and each other. They must give a right continuity to the light spread for uniformity or singleness of the expression made. This does not shut out any decorative incidental brought in also through light.

3. *The lamps may be of various sorts.* Chief among them are the high-power units manned either with a simple color filter or by devices through which more than one color filter may be moved in front of the selfsame lamp.

4. *Plugs* for the various electrical leads for feeding current into the lamps, motors, signalling pilot lights and such. The plugging allows of the removing of the lamps when not needed and makes possible change in position, should this be needed, convenient and easy.

5. *The control centre.* This is in console table-like form allowing of both pedal and hand control. It is the converging point for all the playing parts.

6. *The particular apparatus,* for the *whole-sale cruder control* of large amounts of illumination spread throughout the "house." This may be of a separate character—an adjunct—or it can have a control participating of the whole.

7. *Minor gadgets:* such as announcing pilot lights. Light to see the instrument parts played on. A buzzer, a rack for the notation sheet, labelling strips and plugging units for the main leads at the back of the instrument.

8. The color filtering media and their frames, or holding parts.

9. Other details will be apparent on actual manufacture.

## Remarks

IT IS beyond question to my mind that *there is in this a fine art to save*. The situation belongs in part to modernity. I don't believe the world has ever before witnessed a similar conjunction in large affairs as now exist. It is a world of "big business" where a singleness of vision can be torn to pieces by the greed of composite masses of men known as corporations or other aggregations. They thrive on anonymity. Anonymity is a cold douche on the warmth of desire to achieve. It discourages the singleness of effort in achievement. This "big business" tends to deny the individual the credit for his achievements. It so and thus makes for a world of forlorn individual initiative. The human family is weakened. Two chickens in every pot is no salve for either the ache or the damage done. Nor do two automobiles in every garage make the loss compensated for.

Certainly the world of public utilities should keep its hands off aesthetics. In this art of which I write, they have set the watch back to where it might never really tick, or tick aright. I am here, and now making a plea that somewhere, somehow the fine art of light-color playing may be put back in the path on which it should have gone as of its starting. Damage incalculable to the

finest in human nature is being perpetrated in more than one direction. Samples enough we have. Can it ever be undone? Goodness knows what horrors television may hold in store. This is particularly so in the hands of those to whom money gain is all. See how they have proven themselves incapable in their meddling with other matters that are fine, not to mention the destruction of those that were developing the worth while as it should be developed.

Dishonest means for avoiding accusing conscience are resorted to. "An inventor did not invent every material used in his machine." So they say: meaning he didn't create the wood, or iron or other necessity that is part of its making. Of course, trees from which wood comes had been. What has that to do with the essential point? The entirely new image created within the inventor's mind is, *outside it*, valuable. A fresh viewpoint was born. No other man could have done it. His training must in the nature of things lack in one or all the lines that another held in his hands before creating his accomplishment. As well ask the President of the United States to get up and sing a soprano aria.

This book denotes at least the innumerable elements and causes that together have made the instru-

ment of play, its art, and the ideal back of it. They make plain for one thing that a lifelong training in a special direction was needed before the vision could come and then take form. Others have lifelong trainings in this or that but it is quite plain that the training for an electric utility engineer is not the training that fits for expertness in expression through fine art. His training and knowledge were not of the needed sort for this. Because of his attempt to appropriate the fine art regardless of its conceiver, all the world may have suffered much.

To hold that the Sarabet instrument is just another piece of electric appliance is not sane. Catering to fine art expression, it is as much more than just a combination for electric consumption, such as a flat iron or stove, as that the nerves and vital fibres of the human body are more than metal parts that actuate a motor or provide heat for the toaster.

Then, too, even an instrument can have the qualities of what is understood as making for the wellborn. Such superfine and excellent qualities as may be felt, yet scarcely measured, are of these. Most assuredly, it may. How difficult of complete definition is wellbornness. Flabby flesh or flesh more solid and grades of a million qualities, less or more, superiorly intercombined. This art is *fine*, like wellbornness.

Mechanicians and engineers had better not sniff with or without contempt at the instrument I have been describing. Its very *directness*, its seeming simplicity are a tribute to an inner knowledge as to what this form of play in fine art requires. Passive plainness is its heart, it is true. And passive simplicity should be its wait-

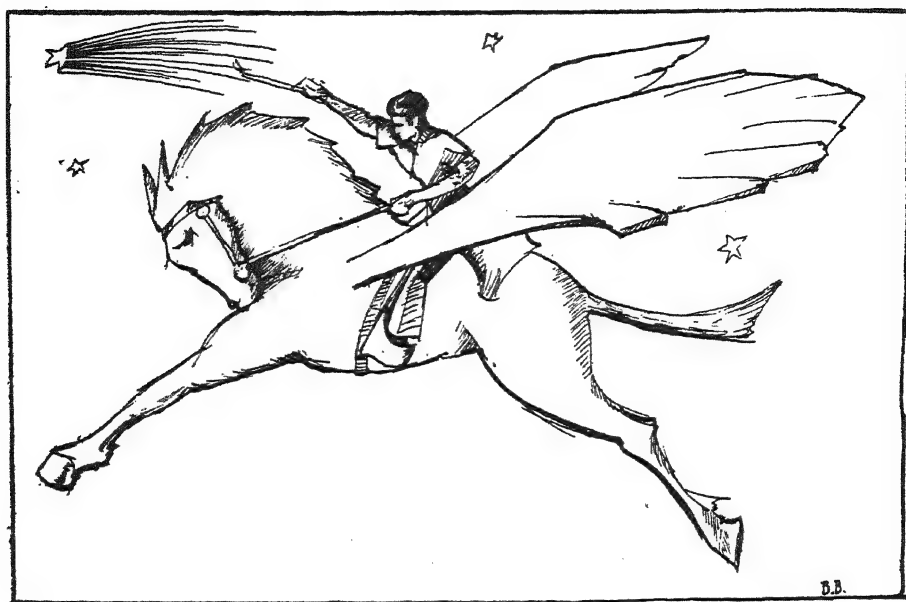
ing quality—waiting for the intricacy of the play. Should this be a quality, too, in the woman one loves?

Interject any seemingly simple obstacle and the will to produce the fine art result is frustrated. The emotional play is then hopelessly hampered, if not entirely short-stopped. It is, in its own way, a passive "simple" through which the artist deals out the incomparable, immeasurable, the limitless, the boundless, the inexhaustible and, in its way, the all-embracing; the perfect look towards beauty.

Indeed, the object for the playing on must have that potential passivity, that allows any and every artist and in *his own way* to make image of that which is in him. Not only that. It must be one that allows showing any of his varying moods. Indeed, even the time of day and changing physical condition must be met by it. There is a destiny to mind being able to overcome the limitations in matter. The instrument, for one thing, cannot, must not limit.

The tool for fine art expression is not, therefore, as a wrapping machine or belt of quantity production. It is as a sensitized plate that may mirror *without obstruction* all the subtleties that can hold between one human nature and another. Their differences, their common understandings are shown through it. There cannot be grains of sand within the wheels. The means for fine art practice must be just this and no more. Just so and not something else.

Press on with me to the art itself—its practice, its notation. There is, I am confident, a glory for you to become acquainted with.



# I

## PART THREE *The Practice of The Art*

### CHAPTER

#### "WITH BRUSHES OF COMET'S HAIR"

THEY shall splash at a ten-league canvas with brushes of comet's hair." A prophecy fulfilled? What else is a light ray but "comet's hair"? Indeed, the original meaning of the word "comet" was hair. And it is with this that the art plays. And if the soul of man transcends great spaces or lies athwart these, then the weavings could well lead, not only leagues high, but towards the ends of Creation itself.

Who knows? The good artist makes unnecessary the question where to. He sits a prince at his instrument, one with his Pegasus. The fountain of inspiration, it may quite be comet-bred, springs. The inner being outstrips space. The beauty and the feeling produced say good-bye to the clay.

"O Lord! Open Thou our lips. And our mouths shall show forth Thy praise." A white surpliced figure at the light-color play console was seen to slide the right arm slowly along the scale path. The left arm at the same time moved towards the left. The Sarabet console stood within a chancel archway. The apse was stirred. It became aware of itself as a ruby, brightling into rosier life.

"Glory be to the Father, and to the Son, and to the Holy Ghost." Something of the amethyst increasingly joyed the ruby-rose.

The recurrent stresses of the intoned refrain orderlied the vibrant color feeling. It measured off the temporal form. By grace of values created through light, altar, rear-dos, choir-stalls, the spaces above, the spaces below united into a oneness of tint and color. The definitions of



space were played upon, as dew plays upon the morning, yet expressing the aesthetic will through a meaning defined. It was human sense jewelled, while matching the mystic values of the Old English Ritual.

The artist at the instrument was, through light play, reaching towards the congregation. He sought by this medium of ray color to overtake its gropings and go hand in hand with it.

The path through the church, the nave, its "way" and transeptal arms-of-the-cross were aureoled at the starting by the spectral blue, true as that of the sapphire. It was "jasper sea" of the finest. And it led to the spot where the thorn-crowned head ruled. By turns emerald rays, opal, gold bathed the thought of the beyond with a penetration stone cannot reach.

"As it was in the beginning is now and ever shall be; world without end. Amen." The darkling was now more, the brightling less, as fervor deepened and glorified.

"Praise ye the Lord." Up sang the scaling in rose, and glowed into a brighter life. "The Lord's name be praised." Red resumed a return for relaxing release. Not words, spirit of the words. By human will, *light* as the holy ghost of sense. The candle, as symbol of devotion, was with a super beauty enshrouded.

The occasion was the début of my fourth improved development of my light-color play instrument.

I have the light score I composed at the time. I am glad this is so. It would have been hard for me, after these many years, to recreate the logic of the light play choice exerted at that time of its actual expression. To make a lasting arrangement through a fragile beauty is as diffi-

cult an inspiration as to form a grace and charm through means not in themselves lovely. That the yield allows the registry bespeaks the valid basics.

It was on Easter night, April 20, 1924. The hour was 7:45 in the evening. The place, Calvary Church, a rare "perfect" in architecture. So, jewel was encrusted by jewel, in the industrial centre of Pittsburgh, Pennsylvania, where electric barons rule. It was the city where this instrument, conceived, patented and designed by myself, had been building.

Four years had gone by, away from my little son and my home, while working at this piece of manufacture thoroughly devised in advance for the makers. All sorts of unnecessary delays had been artificially inserted. My patience had been sorely tried. The demonstration in the church was the final triumphing over torment. The nerves of the shop foreman had finally "broke." "I can stand it no longer. I've done being an evil tool of theirs," he had said, and pushed the instrument through, regardless of the hidden wishes.

In his person I had also broken at least one nerve of big electric business that would break mine. I did not let go the precious charge invention had vested in me. Then, and then only, as the noble in a shop foreman rebelled, had been completed my fourth development of the light-color play console that colored feeling by light values fed. Yea! even to the Old English Ritual.

I do not know that the above description of a fragment of light play can be called a small sample. It can well do as a delicate feather pointing the distinct way. The Eng-

lish that was heightened is not of petty standard. Color is not of obscure might. The game is of monumental proportions. In many and unsuspected ways it is of portent deep. The instance opens to view a door wide.

Consider the wealth of that which is suggested even by so small a bit of a portion. The artist himself encloses a very universe of parts. Light, its color, shade and tint, extension and permeability, is the cause of all that one sees in its infinite variety and change in the aspect of the world to us. Cap them together: the artist and the medium. Galactic systems anew arise. The instrument of play captures the intent and makes the ether speak. The interior is made living and with charge of meaning. The artist, the audience, the occasion, the programme—all are a one cluster of iridescent stars, making to the one end. "Still, the light stirred on the deep, glowing and growing."

The spectral ray itself, of itself alone, is of a supreme exquisiteness, a momentous, a conspicuous beauty. It is all that the precious stones transmit, multiplied and combined, and so much more, too. Used in this way, it reaches for the secret place, perhaps the land of tears. In its own produced way, it does not need to vie with the rainbow. Strained, cleared, purified by the ability of man, it subtends and surpasses the natural.

A rosy light is, indeed, more a part of the actual cause that made us than any cobwebs that have managed to grow about the untrue workings of man-made mind. We were born of light before we were born of our mothers.

The beauty of the material used

is the art's number one asset. This alone has that to seize on one. These rays are of the finer essences of the Universe. They themselves, it seems, are both of the spiritual nature and the material. It is the rarest of the mediums so far used in fine art expression. Such fineness can well cope with fragrance of feeling. Aura and perfume of fruit and flower: through like kind it may be made to imbue the sense. Played, these rays can give a mantle to apprehension and a cup from which comprehension may drink.

Is there no expressing of fervor in the deepening of a rose to red? Can quality of ardor not be suggested in the quickness or slowness with which this transition is done? Can zeal or eagerness not be expressed in the manner of change from blue to purple? Are colors not "warm" or "cold"? Is there not the fervid, the burning of intensity of feeling in the ray's glowing into or embering back? So much there is to choose from. The darkling and brightling give and take from the *all*; even as the sun alters the aspects of our world entire. So they may be made to illuminate and animate both feelings and objects. In the manner of the sun they do this, since they do not shape objects. They but cast their fragrance and their radiance over these to ends further removed. And they are fastened to man himself. These are not of the outside of him.

We said the artist himself is a universe. He holds the composite of all his forerunners. He possesses within himself all that his forbears have seen and experienced. Within his brain are all the sense impressions, from bit of protoplasm in the sea, through many tribes, many families

and not a few nationalities up, up to the present of his life. Fortunate it is that all that are *identical*, which he felt in travelling through the stages, merge into an integral oneness. All sensation of cold—*one*. All sensation of heat—*one*, or hunger, or thirst, or love and desire. He can take his choice of just what, of all that is within him, he shall show forth.

I think this is proven through dreams. I once dreamed I was a fish. I still remember the delicious feeling on the belly of sliding between smoothed rocks—a part of cascade of water under water. Many have dreamt they were birds. What is flying but the fall from a height in which you never strike the earth?

Through the pure of this art he does not reproduce the shapes and forms of his past experiences. But he does suggest through weight of color nuance, the burden of a sum total of values he and all that he underwent before carried within them. A cell of eons dormant re-

awakes while the others sleep. Such are dreams. Of such awakened is aesthetic expression.

In this way the executant is empowered to deal out a choice from a universe of expression out of his boundless impressions; completest of all through his art.

What may not evolution be responsible for?

Who knows whether the idea of our becoming angels with wings grew not out of our experiences as birds. So hateful to us our period as snakes that all our evil we have attributed to one. Last and not least, our sojourn as four-legged creatures was probably so difficult and burdensome, that we have invested our devil, as the root of all evil, with tail and hooves and horns.

Is there a further awaiting? Are the colors of the soul to be lifted into a fitting paradise of home more to their liking? If now *we are the ones who cause to become*, it is worth while fostering this art. Our wishing may make it be.





## II

### CHAPTER

## HOW (?) COLOR EXPRESSION

**S**HOULD you try to explain to an individual from another planet that poetry could suggest in its form alone the blithe, the gay, the merry, the mirthful, the joyous, the sprightly, or their opposites of shades of the sad, the sorrowful, the gloomy you scarcely could, by description alone, give an idea of that which metrical expression through words is.

It would be still more difficult to convey by such explanation that which music can contain, and all that it can transmit or communicate.

I am faced with a difficulty equally great in being foolhardy enough to even try to denote by phrase any specific transporting of feeling through color, itself alone, and strictly speaking.

Yet, it may not be too difficult to suggest. For we have developed over eons of ages within something

of it, but be sure to understand it is but a scrimption of it, made by the sun, moon and stars. Or rather, it has been made through the vicissitudes that have acted as a surrounding to these.

I will not try. In one way to attempt so is uncomplimentary to the reader. *He* knows, subconsciously, the woof background of the idea. He knows what it has brought as it is to him through the incidental dyes and pigments, "rough hewn" as these are. It has come to him in his consideration of clothes, of walls and whatnot.

To bring about the very apparition of color, made literally via the ethereal, entailed effort of a high order. The very effort required points up the values within the idea. The appearance alone, in a spread, is more than usually uplifting and

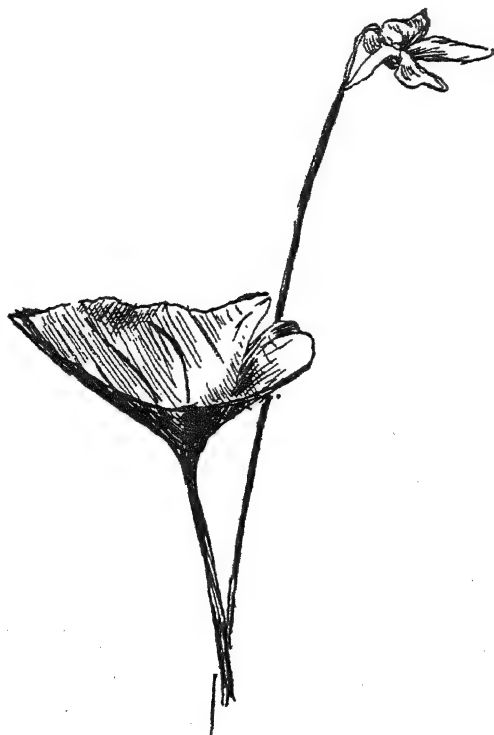
enthraling. To make it speak is a part of the changes that may be rung through it and wrung out of it.

Again I say: I won't even try, tempted as I am to make the attempt. It is too bromidian. It is too unnecessary. Even a dog bays under impress on him of glow from the full moon. That which is unbelievably subtle within Nourathar perhaps leads further on or along the indefinite subtleties that make a difference between mind of dog and mind of man. To detail by word is, in its way, an impossibility.

It is necessary to lay various matters connected with this art on the carpet made up of pages of a book. To try and compass the indescribable is not one of them. What is written must abide as much as is possible in the more easily stated facts.

Nevertheless, one can suggest. One can lay the aureole that is a part of reality. We go not far afield in asking:

*"My dear, what color are your thoughts this morning?"*



# III

## CHAPTER

AS

## ACCOMPANIMENT

THE peas were delicious," I said, "and very well cooked." "Yes," answered the steward on a round-the-world cruise, on which fresh vegetables were rare, and only to be had at certain ports of entry. "Some bone was left in them, as we say." In other words, these legumes had not been overcooked to a mush and *shapeless*.

When light-color play is made to accompany in parallel a work produced through another one of the arts, one created through a different medium, the timed expression which it so attends adds as it were a "bit of bone" to the sheer pellucid translucence of the spectral ray form of meaning. This has a value. At least this is so till the light art is thoroughly established on its own, alone. Certain prior fine arts may at its starting make for it certain firmer guideposts. The overniceness, the precision of these made, let us say, through the sharpness of sound are a good foil to the *general* element of influence, the lighting *atmosphere*, of colored light play.

Though these prior arts are of numberless details within details, they can and do make for a distinc-



ness in their timings. This is of worth to a manifestation with moment edges not so keen. The stress in music and poetry is clean beyond dispute. It can offer a valuable added conductor's baton for the light. The rate of the timing is common in every case to the accompanied and the accompanying—and this means the several performers each of their kind also occupied in creating the results.

One can speculate entertainingly over stippled traits that collectively make the aesthetic impress of a fine art. Music is points of sound arranged and rearranged. And, indeed comparatively speaking, these sounds are few in number. The octave notes are used over and over again in a scrupulous fastidiousness for design. There is the etched within etched—convolution within convo-

lution of line and modelling laid out on a sheet or canvas as in painting or played up through a handful of clay as in sculpture.

Look also at the letters of the alphabet! Shifted and reshifted only twenty-six of them make all prose and poetry. Such small integers can be, and are, turned into breadth, though this be arrived at through a so to speak tighter, more sharply defined integration of the units used. The disembodied being, let us call it, of atmosphere in light-color play can well lean on the moldings of other arts. Though like packs of cards shuffled—dominoes, checkers, chess men—light cannot, nevertheless, ignore the freight these companion arts carry of broad beauty and breadth of substance and meaning.

Music in especial through its incisive beat gives a ruled sheet for guidance sharp. It is well for Nourathar to sometimes conform and act in accord with this content in its own manner and sort of action. Some day it will let go of any guiding leads and will step forth entirely alone. To do this it need not go out into the world all rumpled like the folded petals of flowers within bud. *She may appear escorted or alone in the full radiance of her worth.*

But whether Nourathar accompanies a second art conception in *its* successive and progressing changes, or indeed several of these: as for example, music and the dance, song, and blank verse and pantomime, made together; or whether it is used of and for itself alone, its conception and workmanship are just as much a part of the joy of a new kind of inspiration. It is a creating influence gained through the running exercise of expressive beauties which the

light ray holds of *its own kind and sort.*

The light play may be deliberately made into a contrasting entity to that it goes along with. It may duplicate the feeling or enhance it. It can strengthen and lift it. It can make it still more pungent and attention holding. So, it remains itself, though serving an added purpose by the way.

A many-sided gem is any work of art. The facets are well-nigh numberless. A babel of values raise themselves as the artist prepares a light-color play presentation or even accompaniment. Choice is his chief working tool in both cases. Through this he selects, selects and again selects. He spans not the conception of a sudden. He must step the inch by inch as these appear in front of his nose. And the detail must make for the unity in the broad feeling as a whole. His, the power of willing. Choice rings the changes. Shall it now be on the green? on the blue? or darker? or brighter?

The categories, as these underlie all art, all mentality, are basic. The tools are values, qualities, quantities, extensions and timings. It is such universalities that create the connecting links of mind to mind. Indeed, of any achievements through art of mind for mind, and soul for soul. They can each, these differing arts, be made manifest but through their own sorts of instrumental means, however. *And the means are, if anything, of greater unlikeness than the arts themselves.* They get their living, their durable entities, through action distinct and different. As instrumentals it is through matter the spirit plays, be it throat or violin.

The variety for choice and the

exercise of preference afforded by any of the arts for the accompanying by light play reminds me of a partially deaf woman who vociferously complained. She had worn for the first time a sound bringing device to her ear. She was in the midst of a conclave of people. Much which she need not have heard came to her. What she should have gotten failed her. So she described it. And so, too, she described the much that confronts the artist in analyzing any work of art. It is the manner of doing that is brought face to face with him when he considers building through the consecutive values of light of color for wedding his art with that of another.

As has already been seen, it is the obvious, the all too crude, that is turned to first. There have been various reasons for this. Some of these have been mentioned. Improper apparatus for the playing is one. Performers without the right knowledge or training are another. Unwillingness to allow sufficient time for the expressive meaning to be properly unfolded is still another. Nevertheless, Nourathar is still in the limelight. It holds its own in spite of all this that would have long since killed a creation less meant to live and thrive.

Creation, whether by a Supreme Unknown or by a human, is full of bells to set tinkling. Therein lies the glory of aesthetics. It is the infinite variety possible to its inwardness through its outwardness.

And what a field does this fine art offer for choice to disport itself in. The instrument of play controls many thousands of colors, shades and tints and these to be intermixed to yield sensitiveness at will. There

are extensions, timings. And these are here mathematically defined. Any one of them is recordable, reproducible. Your interpretation can make history in naught but ideas expressed in color. It is spectral values of ideas. Waxing degrees in light intensities may be made to spell growing *degrees* in meaning and these through tint mighty.

There is a scale for treatment. The thing accompanied may guide this specific behavior. Or you can, if you will, indeed but contrast. Notions deep may be suggested. The emphasis can be made visible. If you can show a meaning plain through such a phrase as "He soured on her," you can image through other values that liken though remote in their natures. You may, an' you choose, stick to but greys and browns. Will you play through the mouse colored or the butterfly hued? Both are at hand. Artistry is the pathfinder. Choice, the tool. When I prate of contrast, let me give a specific example. A rich red may be made to surround a cradle song. It will be recognized as a framework.

Beyond and within all these are the feeling and the message. How fine will you split the aesthetic hairs? Both the instrument and the medium can meet your decision.

Full is the background inside one's consciousness of import belonging to separate matters but held in common. They are packed with a life that cries out to be expressed. I am reminded of a little story à propos of linking through values.

An opera singer there was in Vienna while I was studying music there. Her career was of the highest. She was a neatly hairdressed charming bit of an apparition with consid-



erable "bite" to her entity. It was probably the pungency of the "bite" that allowed her so well to make the operatic grade.

I was just out from under the wing of five Quaker "old maid" sisters. Under these I had gotten my boarding school disciplining. There is no better safeguard, and freedom from danger is needed for those plunged into a metropolitan centre with all that this may and apparently does hold.

Whatever the reason, I found myself invited here and there into this and that circle of what is known as society.

Perhaps, because gossip denied her some company, I had been taken, though a very young girl, to her house to a supper party. A Count of Royal Blood had become associated in the public mind with her. He was there that evening. With a little spleen she openly announced she "wanted no counts." In a charming way she teased: "He is like a sheep." Strangely enough, he was like a sheep and being led to the slaughter, which the ability and charm and "bite" in her had tethered, while she, too, was being led to the yawning hollow.

I did not know enough to realize the situation. It, indeed, may or may not have been so. During the conversation virtue was in some way mentioned. I, with my woman suffrage, Quaker outspoken sponsorship, complained: "Then we have to marry these men!" I, daresay, the remark created something of a "tableau vivant."

If an Austrian Count can have a such-and-such about him, as can suggest a sheep, how much more certain that a hue may carry its remote

suggestion in feeling—a *hue itself alone*. That certain individual colors have definite attributes that may be described in terms of value is true. That their aesthetic weight differentiates them in a demarcation that is definable is true. We will but note one or two of these here. As, for example, the quality of *fine* is nearer linked to blue, let us say, than to red. And, as a matter of fact, the eyes can see later to read within the blue of twilight. The rays must be finer to penetrate when others cease in this capacity. And fine is fine, no matter where and how met.

I am noticing in the vase of yellow daffodils before me that the green of their accompanying leaves is deteriorating. These, like the flowers' color, are turning yellow at their tips with age. They are but bidding good-bye first, to the finer quality in green over yellow as their glory wanes. Towards the blue end the spectrum gets progressively more delicate. It coarsens as it rounds to the red end. The yellow then is hardier than the green. Violet is a coarsening of the blue through intermixture with the less delicate red.

One can compare them differently through other attributes. Yellow is the brighter. Does the color circle as it leaves some of its finenesses behind become more coarsely defined through brightness? Pink tinkles. Color can boom.

So even the daffodil and its leaves in their agings, bravely marching along the road to their dyings, proclaim degrees in spectral color values. They offer so far as they go demonstrable proofs to the eyes. These proofs are as to some of the kinds of values inherentnesses held in color itself alone.

The daffodil petal, the daffodil leaf proclaimed sequences in color quantity degrees. They denoted by color grades attributes lying within durabilities, tolerances, hardinesses, toughnesses, robustnesses and weaknesses. They are unexpected consequences shown up by their changing hues. These predicated a proclaiming of finenesses, coarsenesses, countless values that the playing through them could be made to suggest to the perceiver of the plays made. They could be caused to match values or create concepts of *themselves alone*.

I would rather trust the feeling in its sensings, as to color values, than the mathematics of ray or quanta numberings. But as we have made plain both have their own majestic importance.

So *each* color may have its own individual character to match with a quality in something alien in kind to it. But this helps not much. For the colors have a chameleon-like capacity of *changing their natures* according to their position—connection one with the other. They may change their art weights according to the content they are creating in relation—company to their nest in environment. So their character for use changes as they happen to become placed. The relative ~~is~~ concretely there to be taken account of.

The color values themselves then are not fixed. Their dependence of one towards or on the other may change even as relation of person to person may change. Though blue is gentle it may become violent. Yellow is brighter than blue but by relative content, by degree may carry quiet. Red is coarse (?) only sometimes. The *intention* creates the right

vehicle through them and what it is to carry. The well is deep and can be drunk out of through many openings.

Modern writing is full of color analogy: "Purple words have done about all they can to build a better world after this," or "Crimson with jungle passion." The samples could be multiplied indefinitely. So, as picturings through just their names they do something, how much more through their veritable presences, and presences flexibly managed.

This "relative," of course, stops not with color or shade or tint. It is part of the general world of values, its darknesses and brightnesses. The Count, above mentioned, might under some circumstances well suggest rather a tiger than a sheep—or an "angel"!—or a doormat.

In the actual light color the darknesses, the brightnesses, the shades, the tints extend the quality gamut almost beyond number to count. And such are further extended through the relative.

Some will object or will even attempt to scoff—that using light and its color in this way is using it but as an atmosphere, a general surrounding. That such is too evanescent, too transient. Is not the place within which the experience takes place not a part of the experience? Could many an interior but speak!

Keep in mind the Church itself in the accompanying with light and its color the old English Ritual. It itself had its own living speaking atmosphere. It spoke of itself. It was made by the light atmosphere to speak suitably to the intoned refrains *as these proceeded*. The values of the picture whole were part and parcel of the formings within. Have you not

heard of the famous painter who only became great at a very ripe old age because only then did he realize it was the permeating influence of the air, the atmosphere, to paint?

There is no vagueness to combat. The form of the interior itself gives a certain "bone to the cooked peas." It nucleates results so uncertain in the great outdoors. In it there is no missing of either cloud or rainbow. The *meaning* with which this atmosphere may be invested carries it far. The picture need not be missed. The light speech in itself alone has plenty of bite.

Then, too, it must be remembered how difficult is just this atmosphere in the getting. In the way of apparatus only the causing the appearance to become alone calls for much. It is jewel stuff. It is supernaturally exquisite in beauty. It is not a matter cheap to bring it forth, nor to play with it. It has been and will continue to be a money getter. This difficulty of bringing about but the very first step; namely: a spread of light-color continuity, is one of the proofs of the art's development through this work.

Then to make it conform in its change to the finest in expression but clinches the proof. Fineness in the construction of the organ of play is a part of the very ability to show through such a medium the meaning fraught within the moment after moment continuity. And if one can say: "She is like a tabby cat" or "He is like an eagle," how much more possible is like-en-ing through such a pervasive stuff as mobile color, mobile shade, mobile tint, mobile dark-nesses, and mobile brightnesses.

Of a certainty one form of manifesting significance will suggest some parallel made through an entirely different mode. Entities more distinct than those held in the showing of the arts may be and are arbitrarily linked.

The scope of Nourathar is wide. And this even when an accompanied work of art is progressing in parallel with it. It can make plainer the climax, the antithesis to be sure, and it is a help to the order of the thought. It is of a forceful greatness of itself alone.

Will you in your play feature an "inner" or the "innermost"? Will you make contrast or will you enhance? Light color gives you the opportunity of being as garish or as subtle as you please. This in no way places it as a vague speculation of the mind. It is action through an apparatus. It is opposed to the quiescent and the immaterial.

In accompanying with a light-color setting some simple love song cradled in the mouth of May the green of the little leaves may spring at you. If, on the other hand, the warm human coursing seems chief, why then exploit a variety in blood reds. Or, indeed, the colors mentioned alternately, which in nuance of shade and tint may be suggested with taste. The words of a song help much. There is no mistaking their say.

There is no mistaking the color say either.

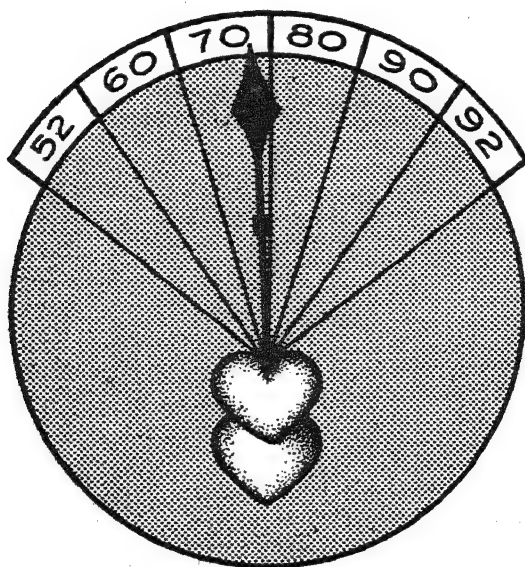
Aesthetic logic is inherent in everyone. Choosing the particular necktie for a given suit is part of it. It is as universal as life itself.

Anyone may be king. And, indeed, one may have a different interpretation for the self-same work than that conceived by another. Both conceptions may be right. The one necessity is for the artist to be true to himself. The beholders will then understand. Each bell has its match-

ing tinkle in those who see. It may be a vision for the outwardness and the inwardness both. Or rather it is such. Matching, contrasting, suggesting will be perceived as either a matching, a contrasting or but a suggestion. "Also sprach Zarathustra."

"Zwei Seelen und ein Gedanke, zwei Herzen und ein Schlag."

"Two souls and one thought, two hearts that beat as one."



## IV CHAPTER

### PICTURE INVADING

THE character of the timing most plainly rejects all attempts to appropriate this art via the picture-making route. This has been attempted so prominently that it deserves a word. Picture, static or picture in motion, made by pencil or brush or projected through lens as magic lantern or "movie" cannot make pretence to pre-empt or displace this art. The ruse or wile will not succeed.

Many other reasons obtain beside the timing, of course. It is almost bromidian to mention them. As, for one example, it is not a side of a picture to spread itself, as part of its expression so as to even surround the field of vision. These two reasons mentioned remind that the very physiology of the human being, the pulse and the eye and other component parts, may dictate the demarcations that differentiate Nourathar from the plastic or pictorial—as indeed physiology may differentiate between all the arts.

"From harmony, from heav'nly  
harmony

This universal frame began:

When nature underneath a heap

Of jarring atoms lay,

And could not heave her head,

The tuneful voice was heard from  
high;

'Arise, ye more than dead.'

And so, it was that the *various*  
'dispassons closed full in man.' "

The very *form* of light-color play used as a medium for human expression is made through time. The picture features through lineament, through line. In Nourathar, it is a matter of asking at what *moment* did this brightness begin to wax or wane? What *instant* did shade give way to another? *When* did the highest climax attain? When the instant that all light became gradually extinguished into the total of darkness? When this color? When that?

It does not ask at what spot on this canvas or sheet does the value begin to shape a nose, a mouth, or image of any sort.

Some space shape must be there since the art is a matter of space *as well as time*. The contour of the interior, its floor, its walls, its ceiling are object forms. Even as the audience sits within the practice of this art, so may a *picture sit there also*. This picture does not do the speaking; the speaking is done irrespective of its happening to be in a manner a foil in this speaking.

And this is so whether the foil is a scene of a theatrical stage, a dance hall, jukebox, motion picture, or other vagary. Or, indeed, a chapel or church.

A graduate student recently told me she "had majored in lighting" at a certain college, so far has this labor spread. That one of her tasks had been to map out the entire lighting for a Shakespearean drama. There, logically, may be intrusion of

a sort. It is an intrusion through scene showing and happening. But it is but an intrusion as to a part in the lighting made to see by. It may be a dictation of daytime, nighttime.

Here comes the point, weighty. It is that of the actuating idea. Did the lighting program for the Shakespearean drama follow only the time of day or that which would cause the actors to be the plainer seen? Did it have in mind that, that would enhance the leading lady's make-up? Or *was the soul of the drama featured* through the lighting, irrespective of the time of day or the star's face powder? Was it a lighting of the philosophical, the psychological ideas incorporated within the play? This latter would be Nourathar.

Given a fine light-color play instrument, the exalting of the idea can easily give way to the crude, the daily commonplace in its use. Both can easily be found to infringe on the invention encompassed in the instrument as a whole. The apparatus used for the carrying out of both ideas can be found to infringe the patented means or no, and indeed the patented method. So this, the apparatus, is but one of the critical guides.

A color print may picture portrait of self-same face, no matter whether ink be blue, or green, or brown. It is the shading values that count.

The exquisite fineness of a painter's eye can distinguish a hue leaning towards any color that may overhang an entire scene or landscape. But in light-color play the right *tool* should be there. This would represent particular provisions of human ingenuity, human effort to the novel ends of expressing within form of time by light change.

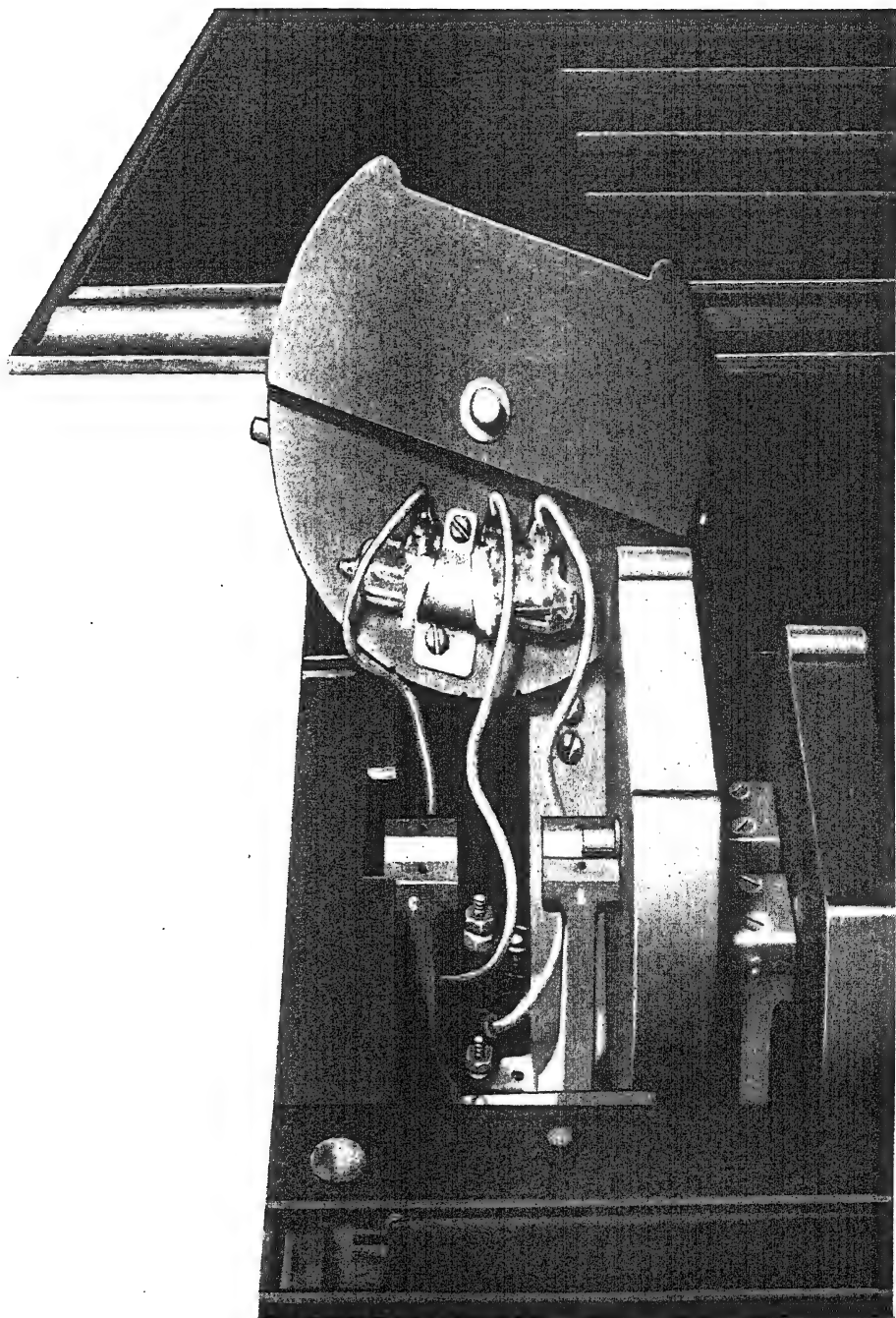
Prostituted in a use within the commonplace, or put to the very highest purposes, the character of the organ of play is one test in the badly done or the well done. A method claim may be infringed, no matter what the apparatus used.

The right push is sometimes shown up as lacking through unexpected causes. Poverty of the mind or sickness in it breeds "outré," strikingly odd, exaggerated or deviated-from-the-proper, the conventional, in the resulting behavior of the individual. He is shown improperly equipped as to his intellectual powers. Awkward thrusts, illogical to healthy minds, result from a *lack in the mental source* for the action.

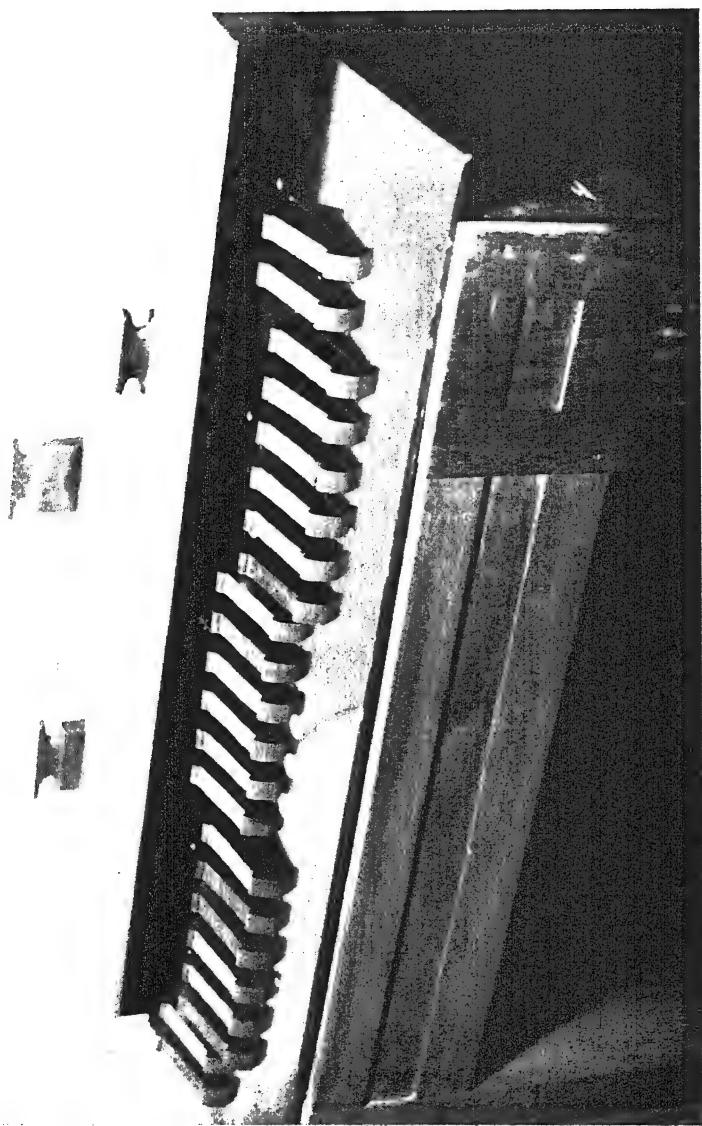
Both poverty in the instrumental means, insufficiency in the organ of play, lack of quantity in hand of the medium itself may in themselves alone cause a stretching out for some alien life preserver to save the situation if possible. This alone may cause a slopping over from the legitimates that are part of the art into fields foreign to it, as in the case of *hauling the pictorial* in where it does not fundamentally belong.

In my earliest experimental trials I found it next to impossible to even make colored light (in itself alone) appear to the eyes. There was a lack of light tightness everywhere. Truly reflecting surfaces were lacking. The color could not be seen, not counting this reflective lack, thanks to the ever-present white light decreed by fire underwriters' laws or caused by street lamps sending their shine through windows, whose doing without had never been thought of.

Being a pianist and not a physicist, I thought at the time that perchance the lack of a ray-collecting



THE ACTUATOR MECHANISM, CONTAINER, AND FLUID CONTACT



THE BANK OF ROTARY ACTUATORS. A TOP VIEW OF THE SARABET INSTRUMENT. DOES NOT SHOW FURTHER GADGETS ELSEWHERE GIVEN



lens was to blame. *I turned to the stereopticon.*

Now it is undoubtedly true that music can and does sometimes suggest forms familiar to our daily life. A melody tinkled out in separate notes may be imaged as starry points. Everyone who knows but some of the titles of some of our greatest music will realize the fact. Indeed, such music has been given the name of program music.

In painting my films, to be moved in front of the stereopticon, I was tempted to, and did, include the pictorial. These interfered with the timing, not to mention other of the limitations, including the all-important timing, they imposed.

I threw this plastic out as not belonging within the time form. It was one of the steps I had been led to originate and forced to leave behind. Others later took the losing path and so they proclaimed their position as pretenders to that which did not rightfully belong to them.

A magic lantern of parts had a considerable vogue. I remember an interesting little conversation with a well-known critic in his newspaper office at the time. There was a framed black and white print on the wall. "Could you move this to fit in with rhythmic stress?" I asked. He knew it could not.

The to-be-expected happened. The "movie," too, was called in. This particular toddling was upheld by a quixotic Mickey Mouse girdle. Here the poverty above mentioned, in the available light-color means as well as the lack in the knowledge necessary to the mind, did its worst.

That which might be described as a grimacing of the face, as presented, was the result. Hippopotamus, gi-

raffe and others, not known to the ark of deluge fame, were called in as being essence of Bach and Beethoven, César Franck and Brahms. The attempt, unconsciously to the perpetrators, became a testimony to the crafty interloping without acknowledgment, of that initiating which was not theirs.

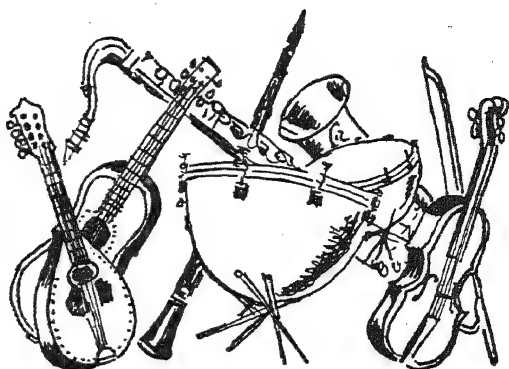
A clever weekly devoted to the witty took up cudgels. It had felt the affront to both good taste and justice. It featured a cartoon representing a seated audience facing a motion picture screen. On this was shown in the large the rodent (is it mouse or in this case rat?), "Mickey himself," to be sure. Underneath the cut: "Ah!" And then the name of a well-known conductor. He deserved it. The scrambled egg mixture he had engineered was too unpalatable, look at it as one will.

To use separate means for picture and for a background to it—the latter meant for the expression through light-color play—would meet still other obstacles. Such could damage one and be destructive of the other.

The preceding chapters denote the depth and width, and how high the result that may be made by the art to elevate itself there, whether the other arts do not even pretend to reach.

We are so used to shape of lineament. We are so wedded to it—"tooth and nail and hymn book, too." It is difficult for us to let go of form made by line, even for a high and lofty purpose, when this is new. Form through dimensions is a very large part of our being. But in this case to part with it, is a comfort as proportionately great as it is novel.

## V CHAPTER



### THE SPECTRAL BAND PLAYED

**H**ERE it comes!" Not the band of Trombones flanked by Tubas: Trumpets, Clarinets-Oboes to their right, Flutes to their left—Saxophones, French Horns and Percussion. It is a silent company. Behold! the Color Band of the rays of light.

Though so silent in their natures, they also can be made to boom, or to tinkle. This light company consists of the true, the original, the basic cause of all Violet, Blue, Green, Yellow, Orange and Red. It is a company large.

It may be that these were born at the same moment as the sun. And that, should they have been hiding under some other disguise, they, suddenly on a morning, exactly at sunrise, showed themselves. Undoubtedly, they created the eyes that their marvels be seen.

Though once they may have yawned and showed themselves as scarcely awake, they now, and indeed in quantity, through this art,

have decided to announce all the very perfection of their beauty.

As they are a noiseless prod to one's delight in living, so they may all the more cogently speak to the eyes while resting the ears.

In their own and very particular way, they can, manipulated as a means of expression, even emulate the pull of sounding brass and tug of tinkling cymbal.

Ranged in a circle, their succession seems one without a logical break. Red leads to blue and green through the mongrel violet, and so further.

The Chinese have given these two, blue and green, one name. It is "Ching." "Ching" means literally middle color, and can be translated as either blue or green. Of a truth, these are brothers under their skin.

The halo ring seems to have focus. On the primary rainbow red is on the outer rim. On the secondary rainbow the colors are reversed. Is there a cubic or other geometrical significance within this?

*To play them.* It is of this band to be played that we are about to write. It is the matter of bringing these lofty ones down from their heavenly estate to use them to communicate with. It is the art of causing them to *say* that for which words are too rough and uncut.

I know fine art. As the medium for such, they have every necessity. Their capacity for this new use has, in its way, been already proven. This book is aimed at forcing a better and more common practice and thorough.

There is a great difference between this spectral band standing so stupidly up in the sky, inert in the form of a rainbow, and *it* played here below as give-and-take between human and human.

There is a cunning to this. Something must be learned. Something taught. Practice, interest, performance. It has repaid so handsomely in money and attention done even badly. How much more will it bring in done well.

Not in linear strands, rainbow-like are these to be played. The eye must be made to comprehend with every one of their values unconfused and in so, full. It is only when the meant result is conveyed frontwise, sidewise, upwise and downwise that this can be. *There must be a unity to all the wide range of the seeing field of vision.* The eye's scope must be catered to for *unconfusedness* in the impression. The mind's horizon, as well as the eyes' also, brooks no uncertainties. To fill full is needed for the fulfilling of the expressions created.

Played, they offer a variety of kaleidoscopic fronts—and so strangely, so vastly diversified. For,

the character of the expression they are made to convey may even depend on the color company in which they are placed—on which they are caused to find themselves in. The context of one, with the other, determines. Ah, yes! They are coquettish creatures.

For, look you! even a captious sequence of sensitive expression may be unfolded in a one color, monochromatically.

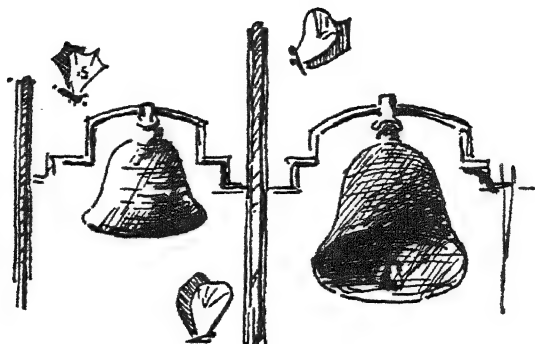
It is not wise to run away from their stratagems. A red may seem bright sidling up to a blue. Shift it next to brightest yellow and behold it, tamed. The truth in color paradox is illuminating. They did so well in the forming of the eyes—superfinely.

This marvelous organ detects the veriest mite of blue or yellow in white of diamond—shade and tinge in pearls. In the true of the ray, accents slight are distinguished, and slight accentings are useful to the artist.

It would be a wrench to suggest the quiet of twilight through a toned down red. But if blue happen not to be available it could be done. The darker, the brighter is a part of all of them and this scale is long and greatly varied. Acquaintance must be made with the potential identity of each one, and *each one in its changed relation to the other.*

For the particular purpose and up to the time being, we have married them in their full intensities one to the other in a secondary and tertiary mixture. So we have them as first to do with, as well as with their cousins first and second once removed. And this kind of commingling will be carried out in still finer ratios as time goes on.

## VI CHAPTER



### THE "MORE"

WE HAVE impudently slung: "shuffled pack of cards, dominoes, checkers" at other fine arts because they dealt in stippled, small and *disjunctive* integers. It is quite true, however, that though they are of such, they yet are made to arrive, with a well-nigh insuperable difficulty, at a broad end, at the same time, smooth laying out of the intent. This burden of their messages is traced out, nevertheless, through so great a number of small working units.

The fine art of light color plays through a general *mantle*. Its working manner and means are of a oneness. The variety is created as part of the wholeness of it. It is not of dots or lines. What, then, is its building up way? Simply said, it is much of a matter of just the "more," the "less." It is a singleness possessed of characteristics. It is dynamic increase and decrease in chief of a wholeness of a collection of diverse qualities and quantities and such-like fundamentals. Such is the vital phases of its expression.

### THE "LESS"

The "more," the "less"! Innocent looking little words of but four letters each. Together, only six letters of the alphabet. Handling light by force of the action and activity that such comparatives allow; wraps up in variety of envelopments, of sheaths this whole new fine art.

What are these dynamics making up the play continuity? *To mention but a few*: they number in part the more brightness, the less brightness—the deeper darkness, the less of the absence of light of this color, of that color—greater extension and restriction in spread, direction and the featurings of different portions of the cube interior. The waxings and wanings are timed. The unfolding of the sense is of a gradualness. It is not as a jumping jack but insensibly reposeful and broad. It is easy in its coming and its going. It is of a heavenly serenity. Through the play a god-like intellection can be made to pervade the field. It has the peace of the first snowfall in it, yet it can have a blow that is heavy. It is of the primal livingness held in the all.

Through its artificial uses the results are new and strange. There are intermergings. As for example: brightness change with color change, extension change with timing change, and so on, through a wide list. The elements for the expressing workmanship are of such like. And this finds these well-nigh numberless.

There are so many of these elements, it is almost footless to try to catalogue them. Their excellence of progression can test the composer of a light-color play composition as the line of poetry can test the poet, the phrase of music, the harmonist. This composer, through light, may be measured with as fine a rule as can proclaim the excellencies of these others. Great effort can be expended on the apparently simple leading. The noteworthy and lasting result is as perceivable in its quality of inspiration as is a worth whileness in any other art.

Hovering over, and within all, is the supreme beauty in the seeing of just the medium used. It is a spread of as precious-a-having as is the color ray in itself. This beauty helps the tolerance of broader factors than the points teased into form by other arts. This beauty of the medium itself is to be continually kept in mind in gauging the force of the art.

Should we attempt to list some of the phases, which the material offers for effect or expression, we would make a start as follows:

### 1. *Spectral Color*

The choice that may be exercised within the range of the true primary, their secondary and tertiary combinations of the color rays. These, in themselves, alone offer a considerable gamut and gamuts. They may

be intermixed in further ratios as time passes and the practice of the art gains in conscience.

### 2. *Darkness and Brightness*

The defined scale points of darknesses and brightnesses. Under their wing all the spectral ray, and its admixtures, takes on an extended, indeed a chief scope—through the scope of shade and tint. A large part of what may be called an infinitude of hue lies within such darkness and brightness scaling. In this art they, the darknesses and brightnesses, constitute the woof of the play. They carry a chief burden of the transmitted feeling. They also tend to make a oneness out of more than one color, or colors, simultaneously produced. They hold the capacity of unifying a result made up of a variety of parts.

### 3. *The Timing*

The timing links definitely to the very physiology of the man as we will more fully explain later. The timing is, indeed, one of the many markedly differentiating points between light in nature and light used as this art. It is here of a special and flexible regulation. It is the guide to the faster changing, the slower entering into phases new. This orderly timing governs the capacity for holding the attention by play so smooth. Too slow and the attention wanders. Too fast and the message goes by unnoticed. It is a timing ordered. It is recognized without being labelled.

### 4. *The Factor of Space*

The entire space featured enters into the art's consideration. The wide range of the seeing field of vision has been kept in view by the

invention. There is its own special dynamics in this playing up to the 160 degrees from side to side, 120 degrees up and down which the eye sees and all at once. From a small point up to this widest extension there is room for much consideration as to its more, its less. Interactively, with this, there is the waxing and waning in the various factors, and factors combined. This wide seeing character of the eyes is another link to the human and his body.

#### 5. *The Higher, the Lower*

Even the ceiling may be aureoled. Or floor spaces may be spiritualized, etherialized. The frontwards to backwards is kept in view, and the side and sides.

#### 6. *Direction*

The direction from which and within which the light rays glance have their part in the potency of the presentation.

#### 7. *Values*

The play through increase-decrease of color values and qualities: richness, coarseness, gentleness, fineness, aesthetic weights.

#### 8. *The Instrument*

All-essential is the instrument for the practice. This is no bodiless ghost. It represents construction through materials solid. It is apparatus at its best. It is stuff on which patents and their claims are specified and have been allowed. These cover method, system, and arrangements through which to infuse into light living, speaking states of animation. The activity is an operable one, to the ends sought. This is not the case with many other notions that have

been said. It is one that may be exercised. The interactions, indeed, within the very player himself on and through the mechanism are made visible, and perceivable. These are added to the interactions found in such plenty in the medium. The artist playing the instrument can show how he himself differs from another artist. It is himself in grade of temperament, of character.

It is enough, enough to do with in all conscience. Certainly all these furnish a sustaining capacity for myriads of specific effects. There is a wide choice. The combinations in qualities, that can distinguish intention in expression, are very many. The properties are well-nigh unending. *It is much with which to make a color play entity into a breathing thing.* It is done. More than one has offered testimony, in print, signed. Not as it may seem but as it really is.

There are many excuses for ascribing, associating, connecting defined feelings to defined color. Color has much that is needed with which to meet abstract successions. Even such successions as confront in a poem or musical, theatrical or other production that may be accompanied by it. Or, indeed, as presenting of itself alone, conceptions through itself as colored by the composer thereof and himself included.

The different phases of choice offered by one and the same concept that may hap to want the light accompaniment can also be met. One artist will meet it so, another thus. Great in kind is the choice range. Marshal all the adjectives forth. Anyone is likely to fit a possibility that can be made inherent within

the play. Though one could wax eloquent with the tongues of saints and angels there would *still be margin left in eloquence shown of the play itself.*

Those, who see, have the understanding of these worlds within that are laid out for them to behold. They will acclaim what is fittingly produced. Nourathar is "good." It has been tested and not found wanting. Inspiration sound, in any one of its many ways, will be sensed as to its correctness. And this is because the receiving interactive factors within one human being's body are paralleled by the similar interactive factors of the producing human being's body, the artist's. Through light, and its instrument for play, the aesthetic logic is brought forth in a concrete and embodied form.

So successful has the début of the art been, that I am told courses in the fine art of lighting have been inaugurated in large schools and colleges. With knowledge, only character, interest, and determination are needed for mastery—given the correct instrument for the playing.

For those, who have seen, all this will be clear. One must wear the writing of a book like an old shoe. It is continued walking over the sentences that frets them down into a smooth and easy going, over the difficult matters they carry. If I hap to repeat, the above is reason enough.

The rock-bottom ground, on which this art disports itself, is total darkness. Beginning on this, it proceeds to clothe the nakedness of this nothing with light: light, in all its expressing varieties.

You will ask why feature the *extension* of the light play so as to,

when so wanted, take in the greater or lesser portion of the space? It is an added help to that needed cumulative increase. It fits into the picture as a whole. It widens the scale for feeling. To see something filling a restricted space before your eyes and having it come from all about may be likened to the bathing a small portion of your body as against the complete relaxation and sense of well being of the bath "in the altogether." It is when the entire field of vision is surrounded that the full climax is attained. *Every manner of scaling is needed*, and may be legitimately used. The one furnished by extension in space is one of them. We have seen that this filling of the whole space at special moments, regardless of the lesser extensions, has been much used with large results. A scale is valuable, however, along *its whole length*. To use the climactic ending only in any one of them is a story without a beginning.

The worth of the color needs no stressing. The darkness and brightness work as a unifying bond as well as for the stressing which these hold in themselves alone. Shade and tint are a large part of single colors. It is a unifying quality when any degree of darkness is participated in by all and any color effect simultaneously being handled. This is something as twilight darkens the colors of autumn leaf and flower as well as the browns and greys of ground and branches alike. It brings the all into a common feeling. It may give a oneness in the value, no matter how many colors are simultaneously or iridescently apparent.

Should you, as we are in the vein, need to be reminded of simultaneously seen color glories, here is a per-

tinient description by a French author of long ago: "Fleeting scarlet on red, deep yellow on gleaming gold, glowing chestnut on russet brown, green white, musty blue—a myriad of shades that flushed from a faint tinge to burning splendor." All these of twilight and early morning can unify together into a common darkness and brightness value.

And this indirectly produced color in nature falls short of its direct unadulterated projection in this indoors, as that which has been described.

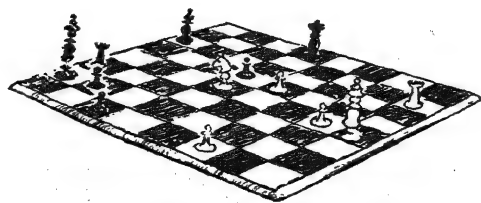
The colors outside are not under controlled bond. A special space for a special purpose binds them not. They are not policed by man's pulse and his respiration and *this may be taken literally*. They are not tuned into human speech made by a human for human. *They are not even those aeolian harps which give out a few harmonious notes but never play a tune, fitting the nature of man.*

It is the interior made specially

for them to look into and be seen that wrings out their full sweets. It is by the artificial that they are compressed into an athar. They are fettered in order to be free. The timing also ties for the wanted result. Willy-nilly so are they rendered pungent to feeling. Controlled, intensified, they are thus cut fit to the marrow of man's bones.

Another development of nature, the human brain, in this manner turns around and devises a newness out of that which existed long before it—and for its own and very particular purposes. Man succeeds. Even as, in the orchestra, he has made an entirely new apparition out of the fugitive sounds of nature—in wave and wind.

As a warning, take this art not outdoors. Even the slight gleaming of the moon can negative your intentions. Just intrusion of it can make the fine art "look like a soul which had met a body by chance and tried to make the most of it."





## VII

CHAPTER

### FORM

**B**UT and since Nourathar is but a nimbus, without line or modelling, wherein lies its form? Form is necessary to its modulations, as it is a necessity of all orderly art—an essential to the *lasting* and the *recordable*. Through the *timing* is the form of light-color play made. In this fact it joins hands with poetry and music, whose ways also are writ in measure.

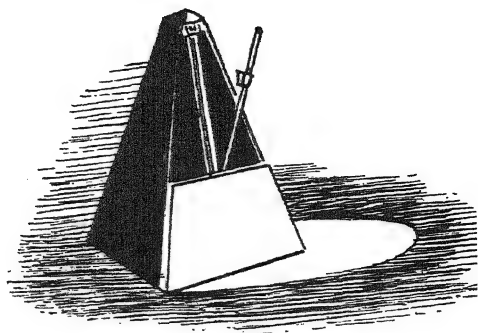
Here we have a ray quanta, a material if you will, or a wave phenomenon, as you like it. It is the root of all color. It is the root of all color played in changing quantities, qualities, extensions and in aesthetic sense weights. How is the what of its importance as to form?

Just this: that the brightness shall wane at this or that point in the successions made; it shall begin to change in its color at this measure as though ordered by clock; it shall have shade turned to tint after so many intervals; the darkness shall endure for so long.

This is easy to comprehend when the light change is cut to the time change of another art such as poetry and music—when it is paced by their phrases and meters. A parallel beat is then ready to hand, and with a pointing, suggesting feeling carried by it. Without other conductor these will accent the durations of the measures.

Barring this, it is to be remembered that all the arts created in their forms by time and its beat hark back to the same blood-propelling pulse of all humanity.

This universal conductor, though



not consciously before one, is, nevertheless, unconsciously marking and setting the pace. So light-color play has its *common* time mentor, too, with these others: poetry and music, and further. This holds when Nourathar is played, either alone or in company with other arts which it may be used to enhance, or support, or embellish.

Light, of course, has its special manner for effecting and affecting. It is a different stuff, a different medium, with ways all its own. It speaks through linking the infinite values held within itself to values of human feeling. Its dynamic potentials are its very own. Though these be entities entirely different, they are, in company with other arts, policed by a common timing.

Its content will be adapted to the occasions accompanied. The poem or musical composition or dance will have its say as to the manner of the light-play nuances made. At this *moment*, common to the light play and the art accompanied, I will change the light feeling to blue; that period of the poem, or the music, I will devote to the blue mentored by its neighbor green. Breathed into life by the aesthetic sensing the form of the light-play composition will be created, either for itself alone or as a handmaiden to another art used in parallel with it. The medium has an infinitude of diversities for use.

*The Art Is Different.* These varie-

ties contain their own efficacy, their own power to produce an effect, their own affecting energies and compelling.

It needs no saying that all art catering to the eye belongs to an aesthetic world entirely different from those catering to the ear. Their respective instruments are entirely and utterly dissimilar. *They cannot in any way be made into Siamese twins.* Each is free to turn as it wills.

No instrument at all may be needed by some of the arts: as in dancing or acting. One art may be but *correlated* with another. And this through connections or adaptations not represented in their respective instruments of production. They are different as the eye and ear and tongue and limbs are different.

To put a truth down here so palpably obvious would be in the highest degree uncomplimentary to the reader were it not for the well-nigh numberless individuals who, some way or other, have sought to make eyes and ears into Siamese twins. Start an error and endless is the trail of its travel. This one must fade itself gone. The linking is by virtue of the timing. This is held in common, and only this so far as the mechanics are concerned.

The timing itself is not a fixity of any instrumental means. There is nothing to prevent causing Nourathar to logically become a hand-maiden to any other art or arts. The connecting link is within the human being and is not a part of the instrument. One art may be all stippling detail while another is all breadth and a general encompassing. The key to their being put together is within the artist. Flexibility only

is needed in the organs of play, together with the needs that the material itself used entails.

Light color is of a well-nigh infinite variety for expression. It has ample for delivering any aesthetic message. Sound can make a sharper stressing. This is a worth-while contribution, for the eye cannot be bludgeoned with successive flashes as sound may strike the ear. The eye is slower in seeing than the ear is of hearing. Spin a banded top and the colors merge. The ear, however, distinguishes separately sounds made in quickest successions. To say that the ear is analytic while the eye is synthetic does not properly explain.

The light-color play takes its own form accounting. Its *leisureliness*, demanded by the eye itself, affects not its potency. But sound offers a sharper accenting for maintaining the order.

In joining the arts of the ear to this one of the eye, the respective bodily organs do not link across the head, from one directly to the other. It is but in their common timing that they but join through the pulsing at the heart at the centre of the body and its attendant respiratory phrasing. These are central to both. They are common to both. Through this central the various arts made through time, including Nourathar, may be factually linked.

Many and many a time, paced by the metronome, have I worked up my piano scales to the rate of a thousand, yes twelve hundred notes per minute. Each note was plainly distinguishable to the ear. On the other hand, it takes something like one-third of a second to establish a visual sensation on the eye.

An occurrence is worth noting

here. It is but a curiosity and has no further significance but as such. As I brought light more and more into the general attention as a fine art medium, a symphonic musical production featured a traffic light as a part of its instrumental battery. A player sat at this standard and caused the light to blink now and then as a part of the musical contribution. At the time more than one symphonic production was given over to imitating in its course the sounds of the everyday utility world as a denoting of the world's ways. It was an interesting experiment. One remembered through it the composition, though perhaps not its music.

The episode suggests the opportunity of making plain still another fact. This is that the unit of time underlying the broad rhythmic forms, the beat itself is of a pattern. It has its own form. It is such a one as the traffic light above could have carried out. In poetry it is known as the meter: the *shórt lóng* or the *lóng shórt*—the iambic, trochaic, and etcetera, *oñe two thrée, oñe two thrée oñe*.

Whereas poetry and music allow a continuous use of such small points of little duration, the light play takes more the nature of a sheath, an envelopment. It uses ampler time spans in its inaugurations and spendings. The beat is, however, continuously present, no matter what the basic order. This is something as the regular in the pattern woof of textiles. The lines of this are there; the general design is placed thereon. The form of the light conception, the light inspiration is also laid on the regulation created through the sense of beat, commonly timed.

Consider any poem worthy the

name and take it as a model of play in nuance. It will suggest climax in its sense, sub-climax, increases and decreases in the strength of feeling. It will have pauses, retardings, and accelerations. It will have repetitions of its lines. Within these will lay the meat of the content. The content of some is subtler, the content of others more garish.

A light-color play atmosphere accompanying these would take on the cues for its expression forms from all such. In the subtle, the light play would move perhaps with subtlety and vice-versa. So also peacefulness, quietness or any apposites. Light and color nuance will furnish the appropriate, the fit, the pertinent, apt and relevant.

So quality of light shadings, with their light color in all the values with which these may be invested, will be made to match or suggest or contrast with qualities of feeling. The light play may be made to exhilarate or subdue. It may rest and charm or create any of the infinite suggestions in which fine art deals. There will be cumulative increase and decrease in intensity of the expression. *And so is the form of light-play composition created.*

But please always, always keep in mind the supreme beauty of the material used. This of and in itself alone. I grant you that it is the well-nigh supernatural beauty of the spectral ray that makes the art as outstanding as it is. It is, in its way, unfortunate that the art possessed this initial beauty. It could well say: "I was beautiful and that was my undoing." This beauty has well-nigh brought the fine art's catastrophic betrayal. For it allowed of its quasi-acceptance when played in a half-

baked, immature, crude, and well-nigh criminal travesty of its right possibilities. Yet, in spite of this, such was its drawing power, done in a manner so lacking in excellence at its starting, that practice of itself resulted in a suicidal nauseatingness of bad taste here, there, and everywhere through the most vulgar and inept use of itself.

Perhaps an expunging of this can still come about through an awakened aesthetic consciousness as to what should be. A fresh start can then all the better come about.

Is it not a crime to stop at the showing of a crude, meaningless red or blue or green or yellow when gamut after gamut *in degree* is offered for use? These degrees compound into high figures the elements, the causes for fine feeling in color expression. It is a wickedness to dirty the color. It is an evil to prostitute results that could be so fruitful of worth-while potential and beauty.

In view of these possible exquisite-nesses of refinement, it is criminal to destroy for the sake of a quick and unhallowed gain.

On the woof of beat the color form is conceived and in basic terms of darknesses and brightnesses. It is another continuity, a oneness within which the color values merge. In other words, the form of the light score is thought out in terms of darknesses and brightnesses. The color choice obeys these values. This simplifies the work of producing the right color succession. These obey in their shade values this guiding ground of the darker, the brighter. It knits them together logically without break. It is the foundation of the expression.

The thinking out is done in what may be called the "black and white." Indeed, the highs and lows, the plateaus and peaks of the values used within the time successions, spread their wings as though they were to be monochromatic. Within this mantle, change in color becomes simplified and logical. It is a guidance. The logic of the color choice falls into this mold through which the conception is being evolved. And so the six primary colors, and their many intermixtures, find a common ground to ease on the mind employing them.

A conception in light-color play could, indeed, be monochromatic, so important are the darkness and brightness values to the expression. 'Tis so, Sir, that on wings of color the darkness of your mood brightens, and the brightness of the temper of your fancies darkens. So, it is thought out to the end that through it a new means of communication be created between man and man, and you and she.

It is not easy to plot a spectral ray conception. It is an achievement not to be done offhand. Improvisation may yield something in view of the utter and sheer beauty of the medium used. To be of lasting use, the consideration given must be weighty and worth while. It then adds to the life of the person making it as to the person viewing. It clings to his memory with a recurrence of the joy first sensed. For this lasting result the artist must be master of the whole length and breadth of the means. He must, if he can, make the pouring into the form one of everlasting joy through the fixing in memory.

## VIII

CHAPTER



### THE WIDE, WIDE WORLD OF CHOICE

**B**EING a matter of fine art, there is, of course, nothing to go by, but the wide, wide world of choice. The artist could not *be*, were he handicapped by "musts" as to the use of his material. It is possible that, numerically, nothing offers so wide a range to discriminate within as color. That is especially so in the field of the spectral rays. These, being the initiating cause of all color, show no loss in the transmission, in the indirectly seen, indirectly handled. What unbelievable conjunctions lie back of the choice made is still another matter.

It is possible that no other world shows as great a variety for the exercise of preference for the selection, that no other shows as much for election. In thinking of these it is fortunate to have the instrument in mind that does the purveying. This shows plainly and through the tangible the possibilities offered for the light-play artist to disport himself in and through.

But here new attributes are to be brought in, in this displaying through the wide, wide world of choice offered by color. It is not only a matter of aesthetic reasoning and sensing. The vastness is to be made a vehicle of what we will call, for want of a better name, soul. It is to be invested with the vital, the emotional nature. Through it individual force and fervor is to carry that which now is thought of as belonging to the incorporeal nature of man—his animating principle. Practicing the art with no soul and very little "rhyme or reason" is not its real self.

The border line between the measurable, the accountable and the immeasurable, the unaccountable in fine art expression is getting thinner and thinner. I flatter myself that my researches as to the pulse origin of rhythmic beat has brought the corporeal, the material and physical in man closer, in his art, to that which now seems immaterial, mental or spiritual, call it what you will, in his

being. Are the more attenuated leadings, that extend about the material boundary lines, to prove the chief ends? or is his destiny bound up with the development in him and his progeny of the body? Or, let me say, will the accounting by his intellect be complete as to just what is body and what is spirit? Will all the ends of what we think of as soul be eventually placed under the understanding? The final answer will be vested largely in the practice of fine art and what this points to.

What is mythology is certainly not desirable and it may also be pointed out that if the practice of fine art is to come up to so high an intellectual estate and cause of reasoning, why the ray for this is a finest tool. The fine art, of which it is a part, is the sheerest, the most ethereal and bodiless for pushing such testimony further.

"Ah, but a man's reach should  
exceed his grasp,  
Or what's a heaven for."

"Were I so tall to reach the pole,  
Or grasp the ocean with my span,  
I must be measur'd by my soul:  
The mind's the standard of the  
man."

Under a heading: "Who Said It  
First?" I see the following:

"Art is long, and Time is fleeting—  
Longfellow.  
Art is long, life short—Goethe.  
Life is short and art long—Seneca.  
Life is short, the art long—Hip-  
pocrates."

It is true. The arts are all the  
sciences.

Keep the proper arrangements as to the interior and its surfacing in mind. Keep the capacity of the instrument for delivering in view. Though the values of feeling are great, and many the means at hand allow an infinitude of ways to meet them with.

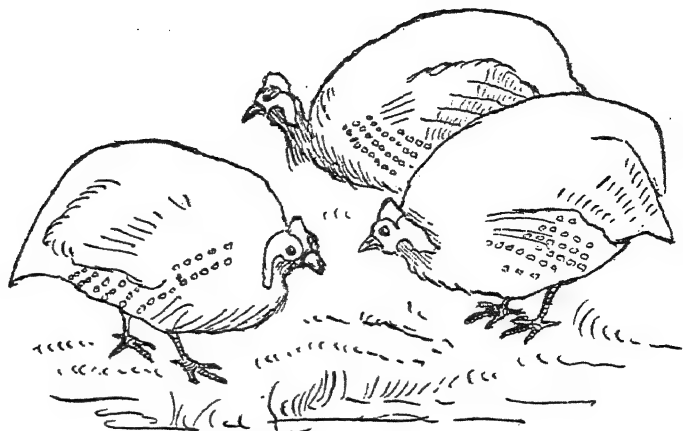
Decision as to the choice to be made comes first. There is a great discrimination that may be exercised as to the particular values to be featured. There is a vast significance to color in the great outdoors. There is well-nigh an equally great one in the interior of one's self, *within the walls of art*. And "the eyes, like sentinels, hold the highest place in the body."

The instrumental means give opportunity for a mean illumination, no matter if more than one color is being played. It is a general mobile darkness and brightness used for the sake of emotional response. It is not a matter of display of colors of and for themselves alone. Surely, surely patience must somewhere be found for the study.

I have had testimony that right expression through this art can send the chills of delight up and down the marrow of a viewer's spine. This is due to excellence in the practice, not to seeing color per se. It can send the worth while into the lives of others, and this must, of necessity, come back into one's own. The primary colors are so few, yet they allow a richness great. Through their darknesses, their brightnesses, both sorrow and rejoicing may be suggested. They possess all things. They can cause to live and not to die while living.

And it is by well-directed choice that the fine art speech is made.

## IX CHAPTER



# The Pulse Origin of Rhythmic Beat

I HAVE come to it! I thought I might escape it—the chapter on the Pulse Origin of Rhythmic Beat. But it was not to be avoided. Its importance is too great within the laying out of the facts belonging to creating inspirations through this fine art. I once had planned some pages under such a heading as: Roots in Physics Branch into Philosophy. This matter is a halfway house in between.

How grateful am I at this moment to the guinea hen's cackle. It gives me an opening to the very centre of the matter. For the short of her "cá" followed by the long of her "ckle" (cáckle) shows her a mistress in the iambic meter. The little guinea hen and Shakespeare (which should I put first? since guinea hen represents all her race and he but one of his) are both masters of the form. There must be something common to them both. *And there is.* Bring your ear closer. Pót räck-pót

räck - pót räck; shórt - lōng, shórt lōng-shórt lōng; oñe, two thrée oñe two thrée oñe two thrée oñe, she sings. Or is it more in the nature of a radio sound she makes? rather than musical. At all events, it is three time to two sounds. It is a lúb dúb, lúb dúb, lúb dúb. The heart action proclaims it also. It is a time form as well as durations held in common.

She is not alone in this timing. *Not at all.* Take the rooster's chanticleering. He is an adept at the trochaic meter: cōck-á-dōo-dle-dōo-ōō-lōng shórt, lōng shórt. Note two things, if you please. Both the feathered friends use two sounds to the three beats. The guinea hen but starts on the "short" while the rooster begins on the "long." So, close inspection makes identical two metrical forms apparently dissimilar.

Note that the rooster combines his respiration capacity to his mastery of beat: "do-O-O-O-O," he holds on.

And so does the donkey in his braying, "hee haw W W W W." This last one exerts his lung capacity "to a degree." It well-nigh ends by closing up his bronchial tubes altogether. Will you imitate him as you read so as to bring it vividly to your mind? Please. These two samples denote in their way that *there is a phrase connection* to respiration that links up to pulse in the multiplied beat.

There is an unsuspected, a momentous connection between beat as presented in iambus and trockee and the phrasing into which these are grouped into, let us say, the line in verse. The rooster's orderly sense of beat finally makes way to the phrasing governed by his respiration. In the donkey's bray his pleasure over his capacity for noise finally well-nigh asphyxiates him in his attempt at musical? or rather expressive phrasing. Perhaps this will happen to radio, too.

I am not pointing out any *little* connection. On the authority of a famous poet, who at the same time was a musician, two-thirds of all English rhythms chime with the *form* of beat which it was I that noted first is used so generously by guinea hen and rooster and, indeed, in more limited way by the donkey, too: *Ās Ī wān dēred wēak and wēārȳ.* Or, *"Hōw swēet the moōn līght slēeps ūp oñ this bānk"* shōrt lōng, shōrt lōng. The examples can be multiplied indefinitely.

Indeed, this common sense for beat is more or less all-pervasive, not only within human sense but animal as well.

There is a glowworm, the *Luciola Italica*, that shows this selfsame talent—(?) for beat but made apparent

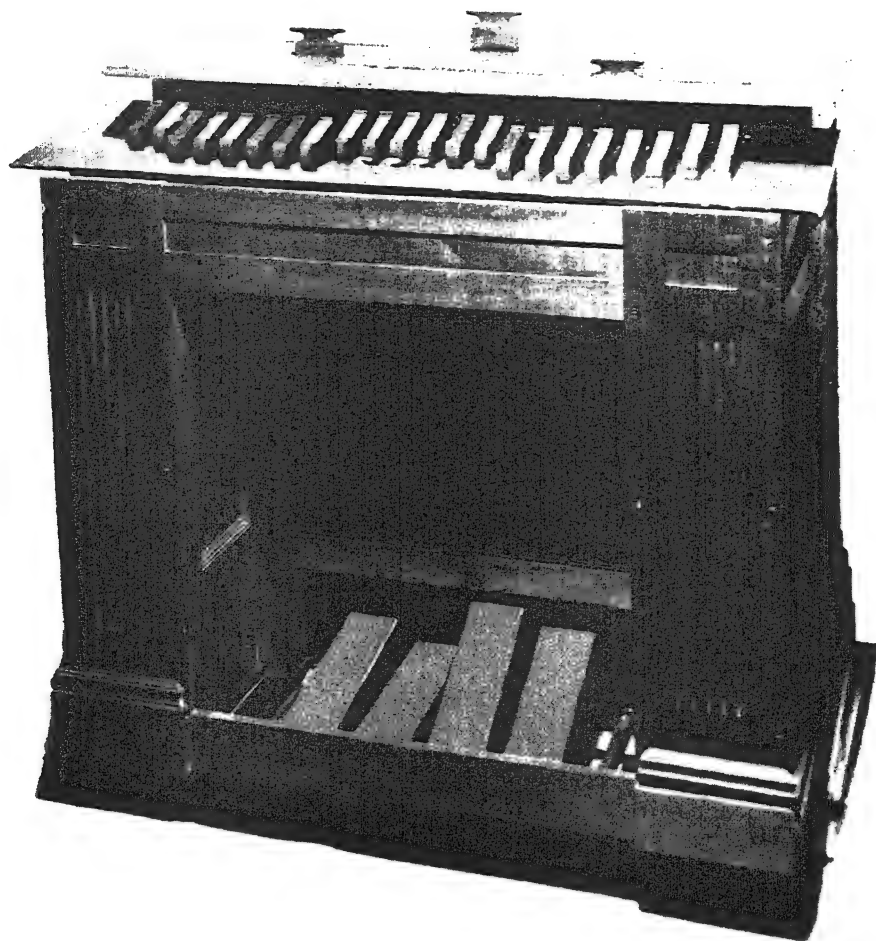
by means of light; *not sound*, mark you. *It gleams in a regular periodicity.* It warms its mate to approach thereby. It does so through such aesthetic gleamings within its body. So, too, through this light gleaming may "Two hearts beat in *three quarter time*," though the hearts be within the genus *lampyris*.

For in the insect family is first found complete a circulatory system with heart, valves and blood vessels. It was I that took this study into the animal world, the world of comparative zoology, after I had noted its over-all significance in the physiological of man. Now note that in all this "oñe two thrée, oñe two thrée, oñe two thrée," no matter how made apparent, the "two" is given time *though often no sound be present*. On this fact did hang the proof that *time* was back of verbal meter. Silence proved a beat instinct independent of the sound or of the light. For where sound is *not*, where it is missing in a pattern defined, there must be time. What is this clock-time measure is the problem that so engrossed me in the years 1900 to 1905.

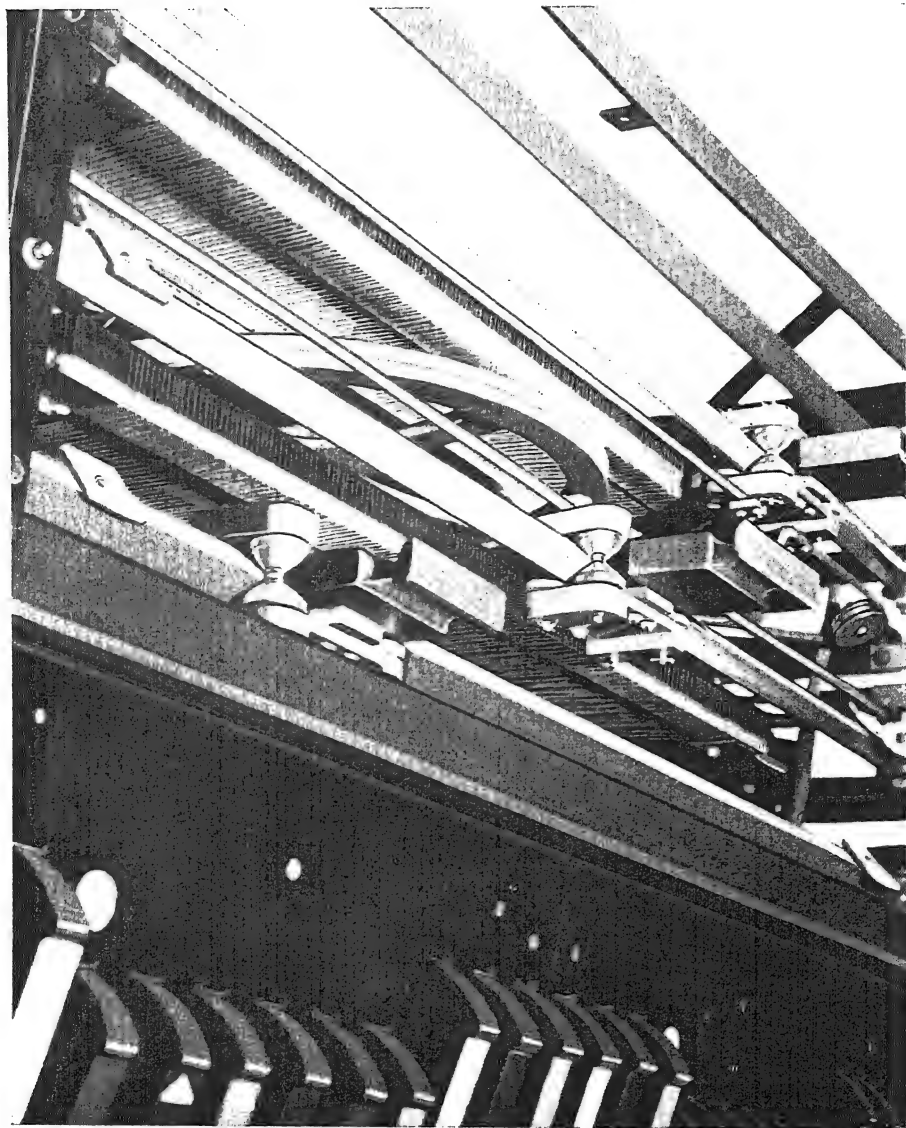
Regular recurrence is of a variety. Saturn records a regular travel about our sun every twenty-four years. I am aware of the writings on the infinitely fine vibrations which may be more than three dimensional within muscle, stem and leaf. There are many kinds of regular recurrences. In the mechanism fully developed within both animal and human is there not a singleness, a one dimensional motion that makes for a defined unit of regular timing that begets our sense of beat?

What is the time rate of this rhythmic beat? The hour span





THE SARABET CONTROL CENTRE SHOWING FACTORS, NOTE THE PEDALS OF THE  
MARY HALLOCK GREENEWALT LIGHT COLOR PLAY CONSOLE



THE WHEEL AND DRUM THROUGH WHICH THE  
PEDALS ACT ON THE SCALE CONTACTING PARTS

doesn't elapse between one stress and the next of music and poetry. Nor is the timing so minute as to be like unto a tremor or vibration. What is the time by the clock which carries this recurrence? And what brought it about?

The question was quite accidentally brought before me through my musical studies. In search of an answer I tabulated many hundred metronome markings for musical compositions. They stood astonishingly within a certain scope.

My husband, a physician, passed through the room. "What," I asked him, "is the scope of the average normal human pulse, considered in its cycle of daily variation?" The answer, "of a little below sixty beats per minute to something over ninety," *fitted like a glove the tables before me*. The centre of the average of about seventy-two beats per minute chimed with the more numerous markings of the list.

The result of this part of the research was done by myself. It was also written up by me and printed in the then standard scientific magazine of the day. It appeared in the *Popular Science Monthly* for September, 1903. It was reprinted and distributed at the time to most of the large reference libraries of the world. It is said that figures do not lie and so the figures are available. The vision, however, comes first.

It was but a step to prove that what was true of music was also true of verse. The tongue cannot utter the meters unless they are close to the rates mentioned. This part of the work was a follow-up, also done by myself. That is, one must speak so fast as to be more or less incom-

prehensible or the slowness of utterance *fails in its capacity to hold the attention*. The findings as to this phase of the study, that of verse, appeared in *Poet Lore* for the summer of 1906. This, too, was reprinted and widely distributed.

There followed my taking the subject into the field of comparative zoology. The entire investigation took five years of my life. Its pertinency to this and that is still coming into use. This time it is in conjunction with the fine art of light-color playing. The above painstaking labor and the length of time it took may be taken as a warning to those who may happen to think that origination is a matter easy.

The whole brain is lifted against its cranium with every influx of new blood sent surging within us at the basilar artery. *There* is a direct contact. How natural that this timing initiated by mechanical motion of the heart gets connected through suggestion with so many of our activities. The very brain, in its entirety, becomes in a manner of speaking a time cradle. This is not inescapable in its definiteness but it is of a fixity of habit not too fixed.

A, to me, momentous happening took me to the country and the barnyard close by. This was in the year 1902. There the guinea hen was undoubtedly celebrating the delivery of a new embryo parcel of muscle and bone as I, too, was recuperating from the birth of my little son. She stressed also the *form*, its *lúb dúb*, the form in her heart beat not only its time. It was the *lúb dúb*, *lúb dúb* of its systole and diastole. So not only is the timing a witness, but the form also.

It is no wonder this unit of stress

is so insistent within us. It has held sway throughout the scale of comparative zoology since the insect family and perhaps before. It is, as I have said, with this family that is first found a circulatory system complete, heart with valves and blood vessels.

It has been announced that this simple pulsing can be taken so far back as the movement within slime in lakes. Taking photographs one per second, note the pulse time, the experimenter announced that the secret flow of life in every organism takes place in that timing. As to this I do not know. From there further back, where? It would seem to me that possibly it was a more complex motion within pre-formful manifestations of life that led to a well-developed mechanism that transmits its suggestion so simply and directly in a *one-dimensional* fashion. Could this have not been a more than two or three dimensional one?

Since this habit, of such a particular beat, is so universally externalized—since it meets the pulsing of so much of the living world—must it not root in a common base or found in a reason reaching even still further back than the heart? And so we may easily come to the physics of it all.

What I have been saying as to the time rate of rhythmic beat is easy of proof. You carry your pulse with you. Try it any time. You have but to thumb your wrist while you march or sing. It will do as metronome for others' rhythmic doings also. Imitate the guinea hen's cackle and the rooster's cock-a-doodle. I would not say these are ridiculous. One can, however, make use of much besides in the connection, up to the Sublime.

Because it uses but one syllable to each stress sing: "Praise God from whom all blessings flow." Remember there is a leeway of faster and slower within which the truth holds. I seem to remember country churches where the Doxology was drawled in most leisurely manner. Perhaps this is because farmers have not their nerves at stretch.

Beyond an amiable expanding or retrenching in the beat, *the attention cannot be held*. Give four or five seconds to each syllable of the above mentioned and you will see how difficult it is to hold by it the active consciousness. The power or faculty of mental concentration flees. Too fast and the sense is lost.

Your timing may go normally only from a little below sixty beats per minute to something over ninety. This scope covers pretty well the horizon of attention. This covers the expressive leeway from stress to stress, accent to accent. It lodges within that regular recurrence back of the life pulsing that is the woof of being. It forms an inescapable framework for the timing which is as definite as the very bony skeleton that supports the flesh tissues. It is so strong, the soldier marches into the yawning cannon's mouth to his death impelled by it. I am aware of pulse rates spoken of and thought of as abnormal, as deviating from the ordinary. And this, even in a frightened little animal. Much of such deviation has its logical explanation within the theorem.

The normal beat governs music and poetry and the dance. *Such a beat jackets and circumscribes Nourathar, too*. So, this fine art's sinew is science. Its soul is shaped in infinite light. The combination brought

about true invention, development, manufacture, trade.

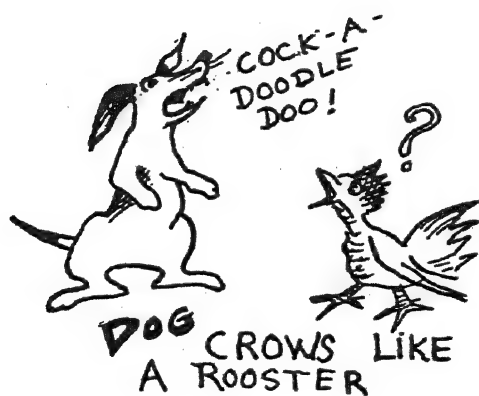
Those who can, through active thought and much labor, vest the *many* under the *one* are benefactors to whom humanity should render homage and to whom they should be grateful. These bring added ease and quiet to the human mind. It is good fortune to harassed brains when a basic root and trunk are found for numberless ramifications so apparently dissimilar.

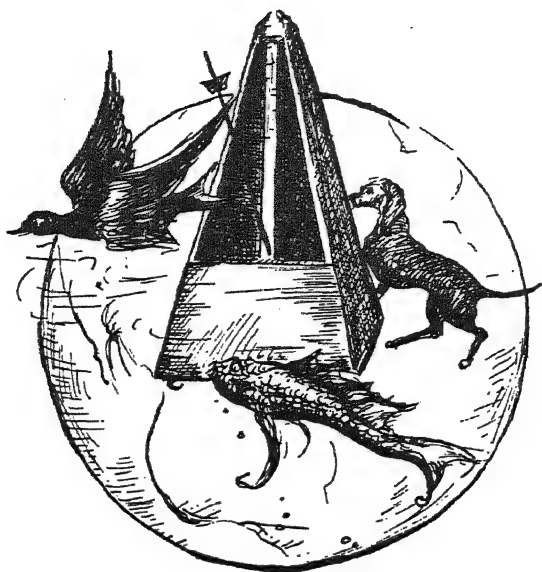
It is also quite possible that animals imitate each other's tones on occasion. The poll parrot and catbird are familiar examples. I have been told that foxes in certain localities

make a sound like the bark of a dog. More remarkable is the apparently authenticated statement that a dog (the address of the owner was given) there is that "*crows like a rooster*." This is a "believe it or not" story. You may take it or leave it.

There could likewise exist a chance that animals land on a tone that is one of what may be called the chord of nature—that an absolute may be unearthed here also, in the sound as well as exists in the best.

There is no imitation in the world's sense of beat. This harks back to an inherent, from an absolute fixed within the body itself.





# X

## CHAPTER

### HOW? IS BEAT IN LIGHT-COLOR PLAY

**N**OURATHAR is of an atmosphere. It is an element of influence in a sheath, an envelopment. It is a state for feeling. How does beat enter in such, as a factor? It must be remembered that though light-color play is an all-encompassing, it is one of deliberately intentioned constant or continuous change. *Moment to moment* leads the waxing and waning of color shade and tint and darkness and brightness. And "moment" to "moment" measures the beat. The expressing intention is sustained on and is led by these fragments of felt time. The variants possible to the medium are well-nigh limitless. That which is and has been and can further be expressed through them is *held in leash*, knowingly and unknowingly, by this exiguous timing.

Time is the mold. The *timing* is the *manner* in which the *content* is *fitted* into the mold. And this timing must, as it does here also, **SUPPORT THE CONTENT WHILE NOT DISTORTING THE FORM.**

There is a close connection between the number of pulsations given forth by the heart and the respiration curve within the lungs these create. Six to eight pulse beats bring forth a respiration. I have likened these latter to the *phrasings* made up of the many or several stresses. Nourathar has more of the nature of the respiration curve. But this harks back to the regular beat of pulse within it. Is the light phrasing and the beat back of it too slow or too fast, *the attention will not be held.*

The beat has its use as guide in the insensible increase or decrease of the

least perceptible degrees of the brightness or darkness in their amplifying or vice versa. It has its use as to the exact moment of change in color arrival or of shade or tint. The *detail* points of elapsing time are taken account of in the developing envelopment, its broad phrasings, and the meanings these are made to convey. Beat is as the ruled sheet marking order for that which is expressed on and through it.

But remember it is not a jumping-jack change. The nuance is more gradual. It can move by steps or degrees changing most slightly. They can be much more graduated than the temporal demarcations within which they are measured forth.

The changing values in black and white and the color they carry are orderlied, are moved according to the underlying moment to moment. These do their timing, know it or not, as though guided by the clock. The vaudeville artist gets the blaze of white light *timed* at the precise *instant* wanted. This is made to fit the climax of his exit *exactly*. And so the doubled applause, the emotional effect and response in which all hearts (!) participate. It is so in this briefest example. It is so throughout every art made within rhythmic time.

The seraphic, the transcendental, the well-nigh miraculous beauty of the spectral ray itself allowed, during the novelty of the art at least, a departing from this continuous timing necessity. This, as it has been done during the playing of the overture in large houses of entertainment. A color was held onto for long without change "ad nauseum." The instrumentality used allowed, indeed, of nothing else. The organist

would be mobbed were he to hold on to one chord similarly.

But even here there *was* the timing art. Light was played in parallel with another rhythmic expression. It carried on the necessary time continuity lacking in the color play. So the needed timing by the differing medium held the attention. It was carried through the music accompanied. So, to its degree was negatived the sinning of the light play against this automatically existing underlying orderly beat.

Nevertheless, the public eye has been patient in tolerating the huge gobs of colored light fed it without rhyme or reason. And this, no matter if it did have music parallel to it. There is no or even little "story" in such stolid color appearance, no matter how much in itself alone it is beautiful to see. But then the large capital aggregations have so arrayed things that the individuals that make up the public have no say in the matter. They must eat out of the art platter as laid before them. As I said: were the organist to hold on to a chord of music without change ad infinitum to the glory of God and Amen, he would be mobbed. The ear will not stand for being so assailed, insulted. Neither does the discriminating eye. It does not stand it without disgusted outcry, and this was heard in plenty from the discriminating.

Our instinct of beat is one as fine as metronomic measure, if not finer. Its succession in time is known and defined. The clock is not more exact. It holds a common baton over every fine art made by courtesy of time; and, indeed, is present in well-nigh all naturally made muscular activity. I am told there is a timing

to the circle of muscular movement that goes to make the golf stroke. I do not know how fine this may be. It has been measured, I know.

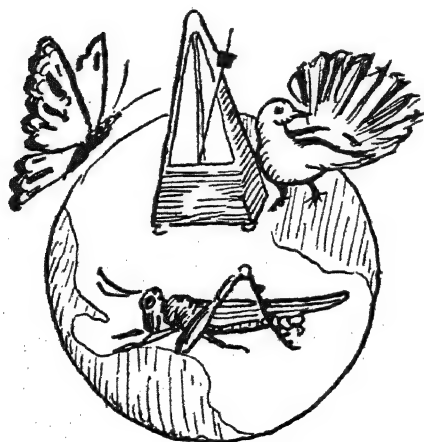
So it is that the timing offers no difficulties when more than one of these fine arts are produced together. Because for all it is identical. It has now been made quite plain that pictures are too rigid to be satisfactorily, and of themselves alone, made to represent this kind of flexibility of timing. A light surrounding them might do it; but then the picture made in light brooks nothing in which it cannot be seen.

In the event of Nourathar being practiced of and by itself alone the same instinct for the same character of beat holds sway. The physical man furnishes the time. It is common to the woof of his being and so that of his art. And the values are produced according to what may be

called this ruled sheet unconsciously.

The form of Nourathar is made by what is caused to happen, through the spectral changes within sharply defined moments of time. This is just as the form of poetry and music is, in this way, basically based. It is form distinct and entirely different of its sort, though the underlying unit of timing be the same. Suspense, haste, delay, the gradual to arrive, the presaged, the forecast, the oncoming, the plunged into—these are some of the expressive attributes which recurrent time artificially applied to light-color play may and does hold.

Repose may be dealt out amply though guided by the second of time. Haste, similarly. And so it would go on in every way that the elapsing moment, so constantly with and indeed of us, can suggest.





## XI

CHAPTER



### VADE MECUM

**I** *HĒAR yōu cālling mē.*" A golden voice. In its way a golden song. The yearning. The cry of a man for a woman. Fit to aureole the phrase at its climax at least with an accenting made in the golden of light?

Here, another little story. It is one I love to tell. I was demonstrating my light-color play instrument with much hope and little faith to an emissary sent "to see" by a large mail-order house. I chose to accompany music. The song was "Ave Maria" (Gounod's), sung in reproduction by one of the greatest sopranos of the age. At the moment I tapped on a certain ray yellow quite accidentally. The moment was at its climactic peak. It stressed an agency above. It suggested the transcendental, the supernatural. The nimbus created seemed to me of precisely the right golden weight and kind. Its aesthetic rightness was un-

mistakably appropriate. Drawn out of myself, I exclaimed: "This is the right yellow."

Now here is the point of points. The mercantile man's face registered a complete acquiescence. It was a semiconscious, surprised-out-of-himself corroboration. It was testimony to what the art could hold. No other single episode could have been more conclusive. *That was the right yellow.* I knew it. He knew it. *All* would know it.

Philosophers stress the proof of true cognizance: you apprehend, I apprehend, they apprehend. That *one* episode justified the years and years of labor. Both the agent and myself knew.

It is to be remembered that the particular kind of the general—the *all the yellows*—was for use at a supreme climax of the work. It was the soprano's work at its apogee, as

well as the high mark of the composition. But there was a felt choice as to *which* of the goldens suited best the particular height of the moment and its particular character. The yellows have so many distinct traits. It was one of the many that clicked.

It is jolly fun to pun the title of this chapter into "Vay dey make 'um"—the way they make them. How is a light-color play composition arrived at? The great piano teacher of my time—it was he who tutored the candidates for piano fame from all over the world. Paderewski was one of them. He liked to say: "I teach my pupils to be teachers. So they can teach themselves." In other words: he drew attention to root principles. These could then be applied in their *every* connection. Within the artists themselves then grew the guide, the Vade Mecum. They then became the manual for their own aesthetic needs. They themselves became their own instructors, "the constant companion," the "go with me," whether other teachers were at hand or no.

It is, indeed, much more difficult to judge one's self than to judge others. If you succeed in judging yourself rightly in your art productions, then you are, indeed, a man of true wisdom. There is a way for the making of an art creation. It is both of the head and heart. I can but suggest here, but the suggestion may go far.

We have chosen above a golden dress, bodiless as feeling itself, with which to clothe two entirely different abstract concepts. One is of male calling to female. The other is a supplication to the Above, that *not* of this world. There is an answer to this also, for one yellow may be a

world removed from another yellow for the moment's expressive power. The golden may lean to what is known as lemon; it may approach the orange. And, indeed, this may change according to its proximity to still another color, and bits of other colors with which it may be tinged.

There are five other color vastnesses besides the one. There are these intermixed. And all these are outside the white and the black which in their well-nigh numberless degrees can tincture any one color or hue into something different. Each may perform as another spoke within the wheel of expression. Or rather each is a further wheel of many spokes for matching variety in feeling.

Then, too, who knows? If by the autocracy of choice, spirituality and human passion are both pitched within the one color scope—I repeat, if through but the authority of choice this is so—who knows but this points to some *common ground* to both in their origins? Real love has a nature like unto prayer. An inference may be correct though not debatable. It then is not reached through mathematics. It may be so reached perhaps through a sensing equally exact, nevertheless.

Something will be quickly arrived at through just what one feels regarding the suitable. It may be a subconscious sensing. Hand in hand will go with this—the conscious reasoning. *There*, can come in the purely intellectual. Much may range itself under this. In color the conjunction of factors, as in the conjunction of thoughts, is a powerful agent. A yellow on the lemon may seem nearer orange according to its juxtapositioning, as I have said. And the course of reasoning may decide.

There are other considerations not so "high fallutin'." Such a one, for example, as expediency. Here another little story. She was a painter who was poor. How many are not? She was at work on a canvas. There lay near her palette a minute pill-box. In this was a still more minute bit of pigment. "What is this?" I asked. "I've been saving that for this spot," she said. It was a lovely rose for a bit of girdle about a bit of Nubian slave's waist.

So, too, in light-color play composition you may wish to reserve a certain spectral ray for some other point in the succession. This may be within the next to next within the one number, or of succeeding numbers. So, you may decide not to use it here because you will want it more for there. It may be *expedient* to reserve a particular beauty for a particular point according to the content preceding or following. And this consideration may take in the entire program for a whole occasion; not only one of its several numbers.

In all this wealth of the available, the instrument itself is a fastness to hold onto. The wide range of the shade scales laid out before you remind not to exchange full intensity color change for simply change in shade. The colors are so few, the shades and tints so vast. The jewel-reflecting character of the interior surfaces, the large amount of color *give* in the lamp heads, the excitement of so much sheer color to be had in its most conspicuous beauty at but the touch of the hand tempt to exuberant riot through the full intensity colors themselves. It is unnecessary, wasteful and improvident. To use all the primary colors

or, indeed, their secondaries and tertiaries in the one composition or, indeed, in the one program is to disregard the values of shade and tint, and those of taste simultaneously.

It is true that the circle of the primary colors its own particular gamut, has its own dynamic increase and decrease. Of itself alone. This is meant irrespective of the darker, the brighter. Violet to blue to green is a waxing in color brightness, the yellow, orange and red a waxing in coarseness. Nevertheless, the color circle must not be allowed to infringe on the color variety gotten through further admixture through their shades and tints. Darkness and brightness is highly instrumental in the bringing of the beautiful expression about. The color palette without these is badly crimped in its possibilities. Do not try to get this only through this reading. Actual practice in ray music production will tell much that words cannot.

Though the true color rays are but six: violet, blue, green, yellow, orange and red, the admixtures of these in their full intensities alone are very great. These may be further extended in variety by being subjected to the intermixtures of the intermixed as well as to darkness and brightness or shade and tint. The all makes an imposing diversity for matching thought and feeling. Still other factors, such as extensions and positions, make greater still the gamuts at hand.

#### THE MONOCHROMATIC

The light conception may be carried out, monochromatically, through the darker, the brighter of but the one color. These alone can make the light modellings of the feeling. It

is just as the darker, the brighter make the modellings within one color print in the pictorial world. The face or object depicted will be the same, the color in which it is shown different.

The light play conception should be thought of in "black and white." Only after this should the color choice be considered and applied. That which is to be expressed will have its climax, its anticlimax and the further subtleties in between. The scales furnished for the playing on, providing the degrees of the darker, the brighter, have all-sufficient gradations with which to meet the expressing modifications. The color makes these just that much more glorious.

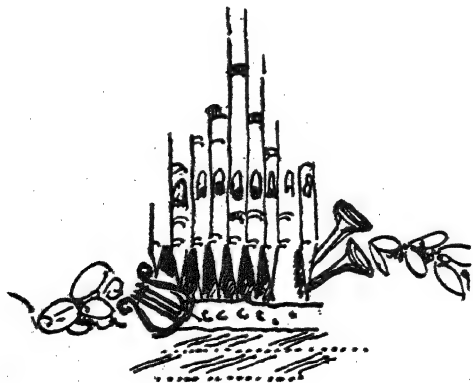
Beyond these and within lie the values particular to the color itself. These colors, outside their shades and tints, also have their values, their qualities and their quantities. From the "tinkle" of color to its "boom," the range for matching feeling is wide. Not too wide are states in aesthetic feeling for these. In the black and white, and color concep-

tion *both*, it is to be remembered that the highest speaking value lies at or from the initialing point of the scale. That is, from its absolute of darkness up.

Indeed, the varieties offered for play by light color give a still wider scale than that available in the other arts. It must be so for light is a basic rung. It is a universal. All other scales must be a dilution, a lessening in what it shows. There is a-plenty for externalizing through it the inward complexes, well-nigh infinite in number and kind as these are.

So then, first through the subconscious feeling. Then by the reason. Also by the chameleon-like change of color when juxtaposed to another. Then through the expedient. Through choice within all these will evolve the worth-while light-color progression. *The apparatus is available.* The timing is inherent to all, ready within all. The manner in which this is done only is left to the artist.

It is not easy. It is a difficult delight. It is rewarding beyond the capacity of words to tell. *Try it!*



## XII

CHAPTER



*The glowworm, the *Luciola Italica*,  
is a "rhythmic stylist" through light*

## RHYTHMIC FEEL

**M**USIC is made up of rhythmic sound. That is true. But rhythmic sound need not be music. That is also true. The basic term is vastly broader. Should you feel your pulse banging a headache out at your temples, that is rhythmic sensing. It is not music. Heard by your ears or no, when soundless to your ears, these recurrent surgings through pulse, marking out your replenished life, are of the same "rhythmic" though sounding or not. Such digging down from the broad to the broader, lodged in an inventive matter, is one of the necessities of good patent claim writing. To feel rhythmic base is broader than the hearing of it.

There are experts in what consti-

tutes invention. Their adult lives have been spent at this vocation. These are called "Examiners" in the employ of the U. S. Patent Office. Their discriminations are not always easy to arrive at. They make this division of the Federal Government a thorough and painstaking clearing house for inventive claims. Any description of the invention printed, goodness knows how many years ago, is enough to prevent the allowing of the claims. The claims are the wordings that in their description give you the protection of ownership over what you have done and conceived.

One of the broad method claims allowed me in my reissue patent No. 16,825, issued December 20, 1927, reads as follows:

Claim 15. The method of combining light and sound for aesthetic expression which consists in producing rhythmic sound having successive emotional values and producing light within a range of audibility of said sound, and in variably merging color of the light in sympathy with the successive emotional values of the sound.

The kind of timing is the chief common factor. The timing is not of the instrument of play. But the article for the playing on must have that capacity for the particular flexibility that allows such timing—and this within the multitudinous factors that are used in such light and color play. The apparatus may be used for any purpose as fine or less fine than accompanying the fine arts made through successions within rhythmic time. It may be used with blank verse or with the drama in which the timing need not be so continuously exigent—with dancing, pantomime and further.

*Nowrathar may be used by itself alone.* The centre then is that the timing is of a particular sort. That without its sort, the attention cannot be held.

Because it is conditioned by the human body itself, what is set forth can well be called a matter of human expression.

We have written elsewhere of the importance of the conception being operable to the ends sought. It will do no harm to repeat. It is a philosophic axiom that any two concepts whatsoever may be linked through some such categories as value, quality, quantity and, in its aesthetic sense, weight. But doing so, as a

means of human expression, must be operable to the ends sought. It cannot be based on proceeding that will not function as such.

As by way of example: a French poet has expressed himself as feeling the sense value of the vowel "o" as rather like dark blue, while the vowel "a" as suggestive of a clear, cold red. Incidentally, it would call forth its difference in what tongue of a nationality the vowels were pronounced.

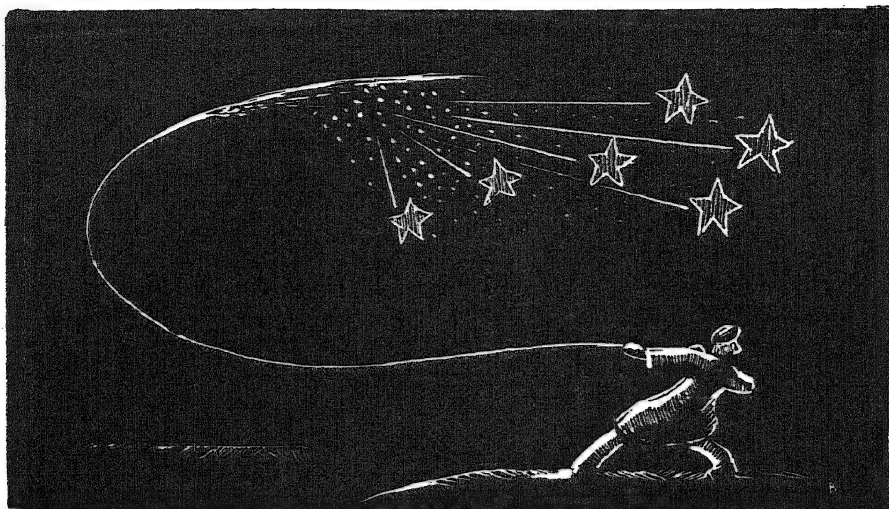
However that may be, it is quite plain that individual vowel detail does not represent the verse line sense as a whole, and that to single each vowel as it is sounded or used with its own particular color phantasm could not feel out the poetic sense of the line, or verse or poem as a whole.

Similarly, it is impossible to express the sensibilities of music by singling out the individualities of each note for actual attention through stippled light.

The eyes and ears are two entirely different sense organs. They do not link across from one to the other. They have central common factors, however.

The instrument of play must be capable of facing the scope of feeling from its whispering to its boom, and all the wide range of its tangibles and intangibles in between. It must be able to face these by the scope of mobile ray color from its articulate but scarcely sonant breath to its deepest resonance and all the tangibles and intangibles with which these may be invested.

In hand as such a medium for play is, there is a wide range of use to which it may be put.



## XIII

CHAPTER

## THE LIGHT BATTERIES PLAYED

**F**ROM rhythmic sound it is no step to that same particular recurrent timing felt without sensation to the organs of hearing. Under this reasoning, play of Nourathar could be effectually done of and for itself alone, and still be within the rules governing such play. The instrument constructed to attain ends of the finest through the medium of light can, of course, be of superlative use where the needs are broader than those required by the art itself. It could be thought of as indispensable to the actor's stage in all its various ramifications: legitimate, musical comedy or opera.

For all and every use the standardized distribution of the light sources, as touched on, can be and should be the same. It is to be remembered that the placing of the

lamps constituting the starting of the scales would be suitable, no matter what the size or purpose of the space lit. The extension is only further more or in further less. It is quite likely that for the stage the 1500-watt units could be advantageously split, to a greater degree into the more numerous and so more positions reaching, into the 500-watt sources.

For look you! or mark you! or note you well. A light sun may need to be just in that place to look down on a Juliet centred on her bier or the aureole may want to be just at the spot to bashfully glimpse her shyly higher placed and more cornered to the side in her bower, webbed there within the enfoldings of the divine and all its compelling tincturings.

For her on her bier the artist at the one control point, at the con-

sole, will know which of the softly subdued natures of the particular light, or lights shining on her, he will play. He will also be at hand to hallow and diadem and color the moments when the rosy values in the ethereal are needed. "Nay, 'tis the nightingale." "Not yet. Not yet. 'Twas the lark."

Studded pretty well with units for the playing on, must the firmament be of the singing and acting stars—their sky. The light and color luminaries must be closely or rather well apportioned for the tapping and the sapping of their capacities, their athariness, for the expressive or other purpose, at every point of the stage. The artist at the console must find such a source already placed wherever he may need it. And think of the burden lifted from the shoulders of the stage manager. He will but suggest that which his inspiration dictates without the physical labors that now are needed in light changing for every new play.

The standardization of the placing of the light sources is an undoubted necessity. The control point placed where the artist can see will then always find the right light tools at hand for the play. Unconsciously, he can feel for them, knowing of a certainty the result he will get.

Do not the worlds of the galactic stars stay in their selfsame positions, no matter how or what the upheavals they circumscribe? So it is that the sources of the light batteries played must be permanently and so dependably positioned for the playing on from the one control point by the individual spirit of an individual soul in the theatre also as elsewhere.

One person sitting at the Sarabet and the stage producer can gird

about his loins reposefully to his work. He need not then risk his neck on ladders and his life to come on chafings against the stage workers' unions. He can just seat himself in the best of his auditorium chairs and conduct properly. He will, perhaps, just jot down what he wants. Yes, all this did spring full-fledged from a Minerva's head or how could the crudeness still maintain even after these many years? Lamps to be handled by rehangings and reshiftings, re-goodness knows what. It is hard to hide a truth. And as my lawyer told the judge in my suit adjudicating my method claims: "She is still leading them."

The stage and its sets must be light reflecting clean. Oh! yes. Neutral colored sheeny surfaces could well be there, where fitting. But then these have already started on their way. We see and read even of reflective flooring on revolving stages.

Small etched-out patches of light to pick out some stressed object or attribute are not shut out by the standardized positioning of the possible sixty-six 500-hundred watt lights that the console can handle in any gradation shade and tint.

The slant of direction, which the rays may be wanted to take in or across, is not shut out by such standardization. There can be so many units placed to the use. Extensions, suddenness and restrictions, all are at the will of the player on the instrument from the one place. With sixty-six 500-watt lights available, the variety of call on them is very great. Their largeness of number can well be shrunk into 1500-watt units where this is advisable. A satisfying use is well clinched by so



Dec. 20, 1927.

M. H. GREENEWALT

Re. 16,825

METHOD OF AND MEANS FOR ASSOCIATING LIGHT AND MUSIC

Original Filed Aug. 30, 1918

3 Sheets-Sheet 2

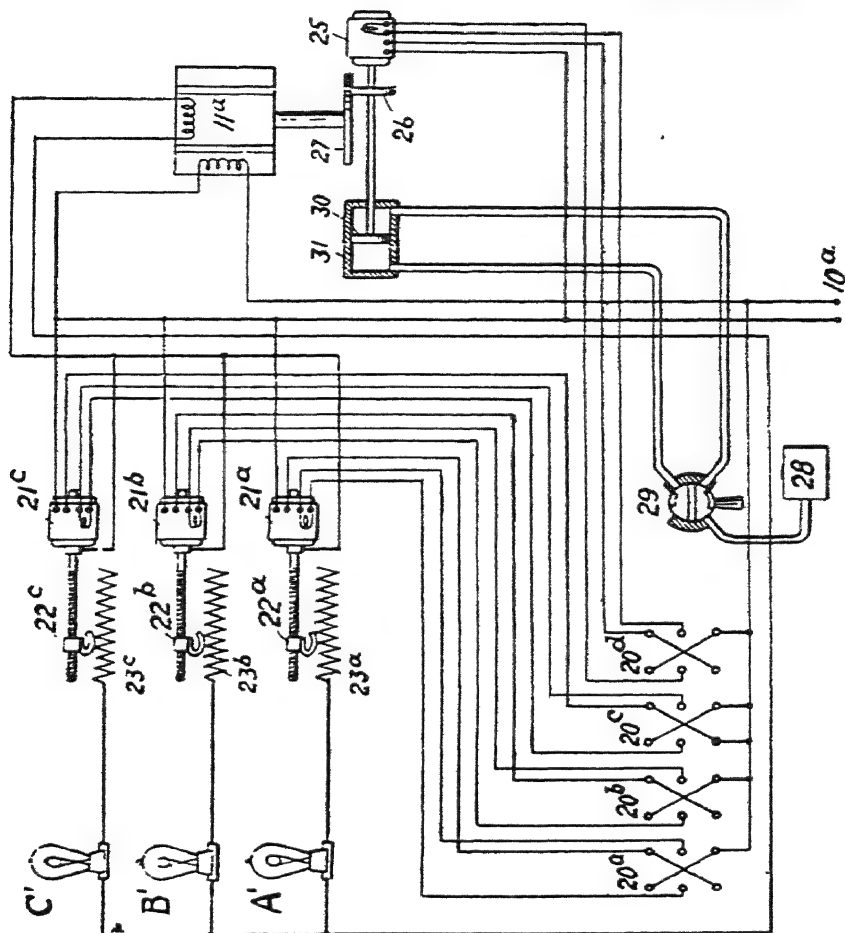


FIG. 2.

WITNESS:

*W. B. Kitchel.*

INVENTOR

*Mary Hallock Grenewalt*

BY

*Brown & Harding*

ATTORNEYS.

THE SINGLENES IN THE SUM TOTAL OF THE CONTROL  
DENOTES THAT THE STRUCTURE IS OF A ONENESS

much to do with if one wishes or needs that much.

But no "straw," "amber," "magenta," "pale blue," "dark blue" gelatine sheets, please. These are well calculated to pull your light-color star down into a ditch from which two hundred sixty-seven gradations to be played on through just the one scale will not retrieve it.

The following reminds me, incidentally, of the manner in which the diplomatic world has recently found it easier to choke off its men rather than take time to rearrange some commercial and exchange intercourse. *The current as a whole may also be choked off in its light producing degrees.*

Since the wording of patent claims has been called literature at its best or at least its most concise, I will copy here one of my claims reading on this particular feature. Its provisions may find a useful place for the focal centres of the largest stages and other spaces, used in conjunction with detail handling of the finer light quantity degrees and further.

"Patent No. 1,714,504. November 2, 1920.

"Control System for Light and Color Players.

See appended patent sheet.

"Claim 1. A light-color player including at least two sources of light of different colors arranged to illuminate a common field, operable means corresponding to each of said sources for producing a graded variation of the intensity in said field of the light therefrom independent of the means corresponding to the other source,

and means independent of either of the preceding means for simultaneously varying the intensities in said field of light from both sources, all three means being simultaneously operable."

It is quite possible, indeed it is probable, that in the eagerness of play a large number of the sources for detail degree will become placed at high color brightness. They will have gotten there through conscious and unconscious augmentation. It is also quite possible, indeed it is also probable, that these will want or need to be put out or their color rendered ineffective in *quicker time than the light plotting can allow for*. It is my opinion that a carefully mapped out light score will obviate this.

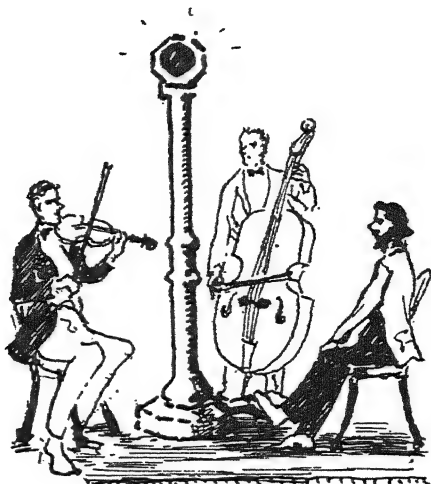
Lacking this, there are two expedients that may be resorted to:

1. The bringing up of the white of a high-power source will effectually eclipse the color from a large battery of lower-power sources. Under cover of this the individual lamps may be one by one extinguished insensibly. This does take time.

2. The provision shown in my method reissue patent No. 16,825 and in my divisional patent No. 1,714,504, Control System for Light and Color Players, issued November 2, 1920 (above mentioned), for gradually choking off the electric source of the electric currents feeding one or more of the units. This could well suit the lazier hand, since otherwise technical attainment will be needed, or for the imperfect lights coring. In other words, choking the potential from which common potentials stem makes for an easier way, and more expeditions.

## XIV

CHAPTER



A Traffic Light Invaded the  
Score of a Classic Symphony

## WANTED A THEME

I WAS "raring to go." I wanted the pugilists', Dempsey's or Tunney's, back. Not for pickaback, oh no! I wanted the superb muscular systems as a foil on which to show off the subtle color interactions played through the Sarabet, installed at an international exposition. Such a good fortune was not allowed me, and by the powers that held there. However, the Dempsey-Tunney fight, which took place that night, served me well.

Since well-nigh "everybody" was to be there, a group of colored people was allowed an opportunity to "strut their stuff," and good stuff this was, too, in the particular auditorium. This was to take place where my instrument was standing by the stage ready for the use. It was a showing heretofore denied it. (Since we are occupied with color we might, incidentally, point out that the word

"colored" as regards people is a misnomer. No people are white. No people are yellow. Except for the *character qualities* to which the words have seemed suitable for the attaching.) The "powers that held" were "yellow." The colored actors were "white." So they seemed to me in this connection.

This capable group of stage performers was to give a play. Their efficient manager, a woman, hesitated. "Oh no! it would cost her no money," I quickly said. I, who was walking on ground, having worn out the soles of my shoes, begging for the opportunity to show what I knew I had.

Put off continuously, here was the opportunity. I did my best. A curtain, drawn along part of the stage front, formed the wings. A man sat on a chair on the stage, to one side close to its edge. He was back of

this curtain and near the platform drop. As I said, I did my best with the lighting accompaniment. At a dramatic moment, I played my color cards to the utmost. The lighting well supported the height of the feeling. The emotional result was so intense there was a crashing sound. I kept on with the light continuity without stop, fearing panic. It was but the man, so seized upon by the effect, he had fallen, chair and all, off the stage into the auditorium.

There is no difficulty in finding a theme, as a vehicle for Nourathar support. The exquisite modelling of a well-developed back will do. There is but choice as to the most worth while or the most fitting. Any exquisite miracle in human feeling, however, invites best the play through this most exquisite of apparitions.

It has often come to me as a truth most astounding. It is this marvel of marvels; that it is the most superlatively beautiful that can at the same time show itself as the most hideous or low. Take the violin. Could sounds more ugly come out of anything? Yet! Could any result surpass the worth of the music it can make? Anyone reading can easily make further analogies. So, too, can colored light be prostituted into ugliness, as it now so often has been.

It is also true that many of the most beautiful experiences are short lived. Flowers and music are good examples. The sequences made through light-color play vanish as seen. Though this is true so far as the outward ear, the outward eye go—the memory clings long in the inward hearing, the inward sight. Very lovely experiences are fugitive.

Have you noticed how unendurably long ugly things can last?

Let me rehearse some early, all too previous uses of what must be recognized as a part of the art. It took not long for the light consciousness to infiltrate, well-nigh everywhere. In the daily short story of the evening paper, I read: "It was a quiet waltz and *'the lights had been dimmed.'*" Then "the music had stopped again, the lights were brighter." "Dousing the glim" for a feeling subdued was early seized upon. Recitals of music, even by the greatest, were done in their entirety within a stage lighting subdued. Well-nigh everywhere, even on ships plowing their way between well-known resorts, the dance for entertainment of the passengers was pushed around a bit by so-called color lighting in a horrible way. One told me it was well calculated to bring on seasickness. I can well believe it. Colored light as a miraculous beauty. Colored light in a horrible way. And just as incredible was this lighting in dining night clubs.

A traffic light, as I have told, invaded the score of a classic symphony; its glinting was *played* by one of the orchestra men. It was made a part of and incidental to the music and *timed to it*. The symphony purported to suggest the affairs of the world at large. So there was a right reason back of this, and so it was correct.

A coming on of colored light, just for that length of time, featured the inner curtain, drawn away as the motion picture was to start; this was in all motion picture houses that could afford it. This was known as "screening." *Here was light-color*

*play used of and for itself alone, without other accompanying.*

The hand-carried "flash" light for glinting a look at the programme in darkened concert halls became a nuisance to others. It should not be done. The users realize not how far such a point of light reaches, nor how it may painfully bore into the eyes rested with the darkness.

All such appearances did not come without innovations in apparatus. Not by a long way. The light consciousness brought about by these labors was ushered in by material changes in existing apparatus. It was not many places of human course that felt not the conversions, makeshift or otherwise, made on account of the newly created light consciousness and in an effort to satisfy it.

Glaring chandeliers over the orchestra and in the concert halls went. Current was regulated to the bulbs, with the waxing tolerance of the eye in mind, not the necessities of the powerhouse or the durability of the filament either. And this was done for the interior entire. Automatic regulation of the powerhouse current more perfectly accomplished was on the road to scrapping the crude units used to mentor the current for the protection and durability of the bulbs. These were altered to suit a scaling to the eyes. The powerhouse adjuncts to interior lighting were on their way out. And so artificial lighting, as a whole, was affected by the mentoring of the intensity gradually as a matter of effect and restful beauty.

The very desks of the orchestra men were given a coating of aluminum paint. They became hooded. The light to see the music by was in

this way shut off in its effect from both the colored light play and the eyes of the audience. The silvered surfaces showed off the color play. The overture was featured by this colored light spread in a wide continuity back of the orchestra. This beauty had much, perhaps everything, to do with the building of some five thousand large houses of entertainment seating four or five thousand people each. It is true that vaudeville houses with motion pictures *but no color* went, and the houses with this featuring prospered. It drew the large audiences as a street light draws gnats. They were audiences large enough to fill all the seats. One such seated 6,100 people.

The public has already shown so large an appreciation for the pitiful excuse. How much more will it welcome a presentation of the art in a manner the better benefitting the high nature of man.

Granted that the light-color play is to accompany a composition made through another art, in parallel with it, what sort and kind of work would be best? It is plain one does not have to go far for the occasion. Nor does the instrument have to beg for an interior, providing, of course, such interior is properly equipped. Which work is the most worthy and fitting for the rareness of wonder Nourathar has to offer? In starting at least, carefully considered numbers had best be chosen.

It is not easy to create the suitable light-color accompaniment. This, indeed, vies with the difficulty of conceiving the perfect poem. For the reason as one: that the short work is preferable in the beginning to the long, it was an error to start out with attempting to enhance or support in

this way a weighty in matter and long symphonic work. Such an opus is likely to be as subtle also as it is long. Only the most sensitive atmosphere serves. The conductor is sore put to, to hold the attention. An error in light could easily disturb his mesmeric hold on his orchestra men, without mentioning the auditorium listeners.

Some colleges have inaugurated courses in illumination as part of their departments. Students are told to plot the lighting for a play entire. This, through its length, is likely to equal the difficulty of drafting a light score for a symphony. Unless, indeed, they but attempt a certain simulation of times of day: night-time, daytime, and the general lighting of the stage—that every part of it may be seen. The wings, it may be said, are enemies of light-color playing. They offer wide spaces for the dispersion of the color rays where they will not be seen. This could be waste irreparable in its effect for loss.

While the fine art is still in its swaddling clothes or strings the brief attempt is highly advisable. The considerations are severe enough, even so. How the imps protecting fine art must laugh and jeer at off-the-bat accompanying an overture, with off-the-bat switches backstage and a stage electrician at the bat. It does not always do to seize the cat by its tail. That is, without regard as to what its head is doing.

Apropos of this, too, a story. Astonishingly, he was son of woman. He sought to steal a march in the hiding night and failed. At first he sold stage equipment. Barefacedly, he told me: he always carried a can of aluminum paint with him. How easy, how very easy to profit by the

severe labor of others! Especially is this so when a large company is at one's back.

Boosted by the can of aluminum paint, he was put on that beyond him. He did not know how much he could expose himself by attempting to engineer a light-color play console.

During the Court hearings, he plaintively said: "I don't think you can color a symphony." It was for accompanying symphonic music that the unit had been installed. I answered: "Do you throw a vat full of color dye into another to create a shade?" Not even for men's suitings would such lack of fine discrimination do. Are not feelings more fine? Certainly a symphony brooks no crudity.

The console in question sinned in every *sensitive* necessity. There is not the least doubt but that the color ray can enhance the moods of the long symphonic production. I have the word of one of the most famous conductors of this generation for that. He was a "past master" at leading his orchestral interpretation to a superb ending. He said to me: "Your work is very important. Don't be too long about its accomplishment. I once used the general lighting to help me. The audience rose up at me." Having heard him conduct, I easily understood it.

Even with an instrument capable of all the nuance inherent in the root of all color it takes technique, practice and experience for the best results. The beauty of the ray in itself alone gives considerable without these, but one must at least know the relation of the darkness and brightness scale points to the color and hue results sought. One

must have these scales for the playing on.

*The More Defined the Dynamic Values the Better*

At starting, it is well to choose that short poem or song or any work in mind that uses the widest spans in its dynamic range. These wide relative values will be the more apparent and, therefore, easier to connect in their meaning by the which low of the dark and the which high of the bright.

The message to be featured should ring distinct and true. The cut glass of few creations rings, or announces, the intent truly clear. Elocutionists and musicians are found putting the same works in their repertoire, because of the fact that so few "strike twelve"—so few have an appeal complete, perfect.

The strong instincts may well be leaned on in the beginning. It were well to try one's spectral wings first through these. There is the cradle song—love of mother for child and child for mother, love of man for woman and woman for man—songs dealing with the high of religion. Such are among these. Others may be subtler.

One thing is certain. There is not the least doubt that the spectral ray, properly chosen, will help these in stirring and quickening and affecting the sensibilities. That it can better the enhancements of an unlike beauty it parallels. The minute crystals of the transparent dyes that guide the rays, it is quite true may be invested even with soul.

*The Abstruse or the Obvious*

It is better, while the art is ripening, to take a short composition that

is rather obvious in character than abstruse. The plain is palpably manifest, is immediately evident. It takes less craft, less artifice to make such meaning luminous. It takes more craft to accompany the difficult, the complex, the mysterious and obscure.

On the other hand, the obscure and the abstruse will be easier conveyed through spectral nuance than it is even through successions of sound, whether these be syllabic as in poetry or musical. Sounds are more like blocks in their unwieldiness. Their flow, their merging is not a part of them naturally. Their units for building feeling are removed one from the other. It requires extreme niceness to weld them into great subtlety of expression. The lighting sheath may well offset these disabilities. It will help the uniformity, the unbroken continuity.

The scale for light play, which has been described, makes insensible gradation with ease. It has an infinite range for the subtle. The material is inexpressibly fine in its leanings and differences and possible differentiations. The variety belies description. It is made for that which cannot be brought out through other means.

Poetry and music dig, it is true, with greater incisiveness into the marrow of the bones. Their vibrations are harder, coarser, in their own way stronger than the wave or quanta set going as spectral ray. These light rays, however, have a capacity for further *penetration* into the bodily tissues due to their greater fineness. They are like unto an aroma. But, though light may not scratch nor bite at the corticles so roughly as beautiful sounds may and do; though it may not stir up harshly the mar-

row of the bones, it will penetrate to within the pith.

Shall we say it is nearer in its nature to human spirit, to what is known as human soul. No one will quarrel with the statement that it is the most exquisitely beautiful single appearance that Creation offers. Indeed, it is the reason for being perceived of all that is seen.

So there are reasons for considering light play eminently fitting for suggesting the spiritual, the transcendental. For at least accenting some of the truth that must be attainable without the aid of the senses and the processes of thought or reason.

Lastly: because it is choice, because it is not to be practiced without cost in exchange, great care must be exercised when and how it shall be made available. Considering it as used in conjunction with the other arts, worthy of it, it calls for the

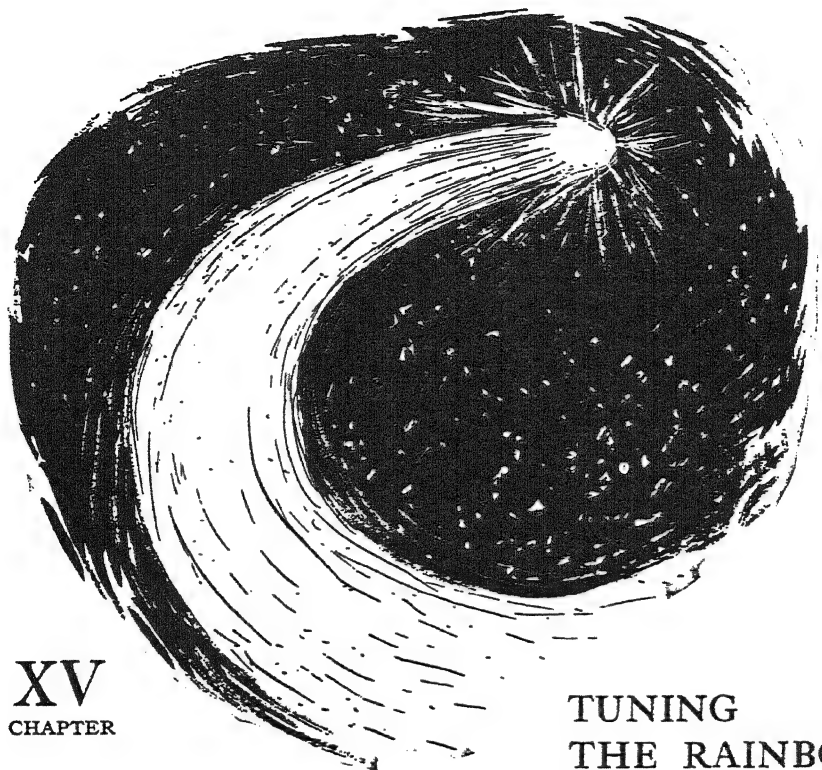
best these have to offer. The mansion itself must be of sorts within which this form of soul may dwell and make itself seen.

#### *In Brief Recapitulation*

1. Light-color play has a field all its own for making expression.
2. During its ripening stage, it had best be used in conjunction with works made through another art made in parallel with it.
3. At starting, the shorter the work chosen, the better.
4. The more defined the dynamic values accompanied, the better.
5. The more defined the feelings, the better will their guidance in light play be.
6. The greater the range in contrast, the easier can the light conception be made clear.
7. The abstruse and the obscure are not shut out in the light-play choice.







## XV CHAPTER

## TUNING THE RAINBOW

**Y**OU are about to tune the rainbow. You will not tune its several strings as an archway. Each is to tend towards an aroma, an atmosphere. It will be within and part of a flexible "athar." This Arabic root, within its realm, has a wide meaning. One can use it in conjunction with a book. The "athar" of the Bible, for example, would have reference to the subtle influences of this history of a people. Athar of roses: the fragrant breath of petalled flower.

Consider first your programme as a whole. Which composition to be accompanied follows which? What are the *relative* weights of these several pieces, considered as the one offering for the afternoon or evening?

To mention now a thought: It seems that the key, in which a piece of music is written or conceived, is not the same thing as thought or transposed into other keys on different tone levels as it were, with their progressions only relative. Each key, within which the musical work is developed, is now thought to have its own particular character or entity. It must be in that case very interesting to follow the composer's groping for the key "c," "c#," "d," etc., he best needs for that particular content.

The colors of the rainbow, though no definite analogy can be made to the above, also have *each* their own individuality. Their hue values are not only relative in one and the

other, they have *that* inherent to their beings which is not within that of their mates in the color cycle. The kind of expressive weight or cogency is, to a great degree, fundamental to each of their natures. In delegating a specific color influence to each of the several compositions making up together the programme it will be felt that this one belongs here and not there. That one belongs there and not here. The process will entail various considerations. The dominance of the categories within the range of blue may seem best for gentleness, in red for proportionate coarsenings.

This distribution of a dominant color among the different numbers of a Nourathar programme is *felt* as right. It is something as the chord structures of musical harmony are based on the tone of a note and its simultaneous higher vibrations or harmonics. Red will call in its own army of relations, blue similarly, and so with the others. Chords based on the tone and its harmonics take their character-form from the interval made from the tonic to any one of its overtones. The comparison cannot, of course, be identical in any way with color, but in both cases there is in the above a suggestion that an underlying reason may guide some of the aesthetic judgment unconsciously. There is also much arrived at intellectually, through a conscious reasoning.

It were well to write here, by way of example, of a light-color play programme as actually produced. This one was given on September 28, 1939, before a large cosmopolitan audience. It was scheduled to accompany music. The performance took place in the daytime, in a completely dark-

ened chapel. The musical programme accompanied by the light-color play was as follows: No. 1, "Elegie" (Arensky); No. 2, "Largo" (Handel); No. 3, "The Swan" (Saint Saens); No. 4, "Ave Maria" (Bach-Gounod); No. 5, "Serenade" (Block).

Partly because I had given it chief consideration in the short time allowed for me for the technique of light play on the Sarabet, the "Ave Maria" highlighted the programme to me. The number to be accompanied was played on the organ and not sung. This difference in tone color between an instrument and the voice makes a vital distinction. An outstanding soprano voice is more ethereal and vibrant than even the best of instruments.

There was no question about it. This work, the "Ave Maria," was seen as belonging in the range of the spectral blue-green—and through the orange—like, to the yellow, or in its spectral nature, gold. These were the rays used as atmosphere in chief. The "Serenade," following the "Ave Maria," was, of course, a love song. It lay to me within the rose-reds and in the climax through pink to white. The length of the programme caused it to be adjourned just before the playing of this number. I was sorry, for it gave me the opportunity of deploying the reds in the wonderful spectral palette. These reds are so very strong. They are so very palpable among colors.

Still taking the programme backwards, the "Swan" by St. Saens, I pitched within the greens relieved at moments by a bit of the rose. The "Largo" by Handel, rich yet a bit quiet, I felt in purple, violet, violet-rose and in climax the rose. The

"Elegie" took in nile green, orange, with a bit of red.

Note that I used the term "nile" green. This could have been met by the secondary or tertiary filter with a little white added between whites to the blue and green. I am using color terms used in current speech. The notation for indicating the light plays will not need these. The points in the scales will automatically take care of these.

The plotting above mentioned is of the barest. It is but a suggester, is but a guide.

It is plain that each number as a whole also belongs to either the darker, or the brighter. This range is not of the primary full intensity color alone, but will refer to shade and tint, to the hue of color variously modified.

This underlying preparation of thought, as to numbers in whole, entailed a particular reasoning. You asked yourself: "Is this composition tragic? Is it dusky? Is it bright? Does it belong to the ethereal, the transcendental? Or does it in itself alone run the gamut from tragic to gay, from dusky to bright? Is it of the human? Like the love song?"

At this point comes the curve of darknesses and brightnesses. This would underly the tint and shade progressions making up the whole of each number. The composition may end in the total of darkness. It may climax to the highest of brightness. It may not deviate much from a certain level throughout. Every phrase will have its particular consideration. It will be considered in itself alone and in its relation to the other phrasings.

Only after conception in dark and bright, in "black and white," will you

join to these the color attribute. It is here that the rainbow material begins to shine.

With the "dark and bright" of the inspiration determined on, and controlled, the color discrimination is easier. The color's shades and tints are in this way automatically decreed by the brightness gradations. The small number of the primary colors, from which to make choice, makes this phase, once the brightness curve is decided on, easier.

It is a mercy that there are but six primary colors. With their intermixtures and the wide range of their shades and tints, the human mind has all it can handle. It is the mind in company with the eye that said: "This many primary colors and no more." A command to the waves to cease their motion would not be more noteworthy.

I think there will be less consideration in accompanying a poem or blank verse than accompanying music. Perhaps not. For opera or drama the color atmosphere will ring through still broader changings or changes.

Through the suggestions for feeling held in the various kinds of values in color, its attributes, your Nourathar composing can speak its various minds. It may be the sombre, the murky, the gloomy, the dismal or dark. Or on the other hand, the cheery, the glad, the hopeful, the bright. Infinite are the phases that may be rung.

Marvel of marvels! Because the interactive norms within the artist are met by the interactive norms within each member of his audience, they will understand his messages. They will understand both their truthness, and their *degree* of excellence. These authoritative standards within

the being are at this dating both measurable and immeasurable. They have measurable or immeasurable all the capacities for meting out, for suggesting, for making apparent, degrees in the infinitude of gamuts held in human feeling through the well-nigh inexhaustible range of spectral color variety. So the play choice is of the numberlessness of the stars in the milky way.

To this point your art considerations need not be done sitting bolt upright at your instrument. The poem, or sheet of music, or bit of choreography you are aiming to accompany with your light-color play composing can be taken to your couch with your thinking done comfortably reclining. So far it is by the intellect, by the reason, of course by the sensed. By the felt and the scarcely to be measured, you will, bit by bit, finally comprehend the fullness of the task and all of beauty and worth you can accomplish through it. Those who have tried it are eloquent in their praise. This praise has been done verbally and in print.

There follows taking the result of your thinking to the instrument of play. It has the fixed standards for the doing, for making the result apparent to the eyes. The considerations have been many. As an example of the much, the many strands, you will ask yourself: "Do I start with the lighting entire and tend to ending with a single lamp or its value or vice versa?" You will locate the lamp or lamps you need for delivering the particular color saying wanted. Then your hand will go to the means for playing on the darkness and brightness scales for the

shades and tints of the particular color determined on.

The tints are arrived at by playing on the white of the light on its own scale against the color in use. The task is eased to the artist in the mathematics, the soundness, yes, the simplicity of the apparatus, already there to be applied. The measurable is a sane rudder for guidance. It is in this placed within the tool ready for the playing on and through without thought as to how it got there.

In the matter of darkness and brightness a general consideration first will help. You may argue: this composition will nowhere call for an absence of light so great as to carry with it inability to see objects plainly by. This other number needs nowhere a brightness not enough to distinguish objects by. Another will extend its scope from deep darkness to high brightness as well. Within these limits come the minor curves of the vast range of dynamic values held in dark, in bright, that may be carried out by playing on the scales, placed before you for the purpose.

I have minutely described the auditorium arrangements for reflecting everywhere the spectral ray truly. It must not be forgotten that from the entire range of the seeing field of vision to a small point or glimmer of light the art, in the matter of space alone, has a wide range in this phase of it also. This is not a measly scope. From anything within 120 degrees up and down to 160 degrees from side to side is the art's playground for every eye or individual pair of eyes there to see.

The human eye has a well-nigh infinite capacity for distinguishing minute changes in shade and tint. The lesser curves of dark and bright

within the broad range of the composition, as a whole, will call on fine discrimination that carries into the hue.

Subtle color, subtle shade will contend for the best succession for their influences. *This is better than that. That is better than this*, they chorus. To the artist is the choice. The interaction is within him, is within his medium, is within the work he is electing to enhance. There is a relation within the moment of play as well as the relation to what has gone before and what is to follow. A certain color, any color, has a chameleon-like nature in that its character can change according to the color that comes next to it or precedes it. This will have its effect as to whole numbers also. The tinctures used in a number preceding or following will have its repercussive effect also.

The artist is not bound by any must. He is free to choose as his particular mood elects. Even his particular mood will be sensed by his see-ers—or eye-ers or look-ers.

In those countries where the critical acumen is most advanced, detail summing up is not attempted. "She has attained a great deal." "He has conquered much," they may say.

The interwoven threads are so many on which a good critique can grind its teeth, a simple phrase is as useful as any. "It is good" suffices. Causing Creation to become as a whole, in seven days, as we are told, was seen "to be good." The model is not a bad one.

Each individual, moreover, has a right to see the selfsame composition in different vein from the way it is seen by another. Therein lies the wonder of individuality. There is no *must* about an artist's choice. Each

may, indeed, bend the accompaniment to the selfsame work to differing end. And the audience will know the why of this. He may contrast the light play to the content of the work accompanied, or he may parallel its feeling, and so forth.

The long composition will require building deeper for sustaining the length. It will take greater mental and emotional strength—and still closer attention. Such extended work would of necessity deal to a higher degree with the rare and is not likely to be cheap in the content it holds. The deep sensibility, fervor and earnestness felt regarding the conception about to be materialized are taken for granted. It is a joy to give beautiful expression to the emotions.

Even a contrasting of the light-color accompaniment to the character of the work accompanied, as I have said, is an allowable possibility. Throw a bright red about a cradle song and it will be seen as a framework, as just a background on which to lay the musical feeling that slumbers.

The proceeding for a light-color play composition, *of and for itself alone*, is the same. In this case you are but accompanying a play of feeling conceived within yourself, instead of a work made by another. It will not be guiding your light ("leit") motives by a work in another art made by someone else. Such using of light-color play of and for itself alone is not such a remote possibility as one might think. After all, it was the feeling within an individual that prompted an art conception. *It is an entity of itself*. How and by what you clothe it, you make it appear, changes not the fact that it

has a place by itself. It may be made visible through Nourathar by itself alone or by other, by more than one of the mediums fine art uses. The result roots in the one base.

We have already cited a brief example in what is known as screening the motion picture of using light-color play of and for itself alone. In this mentioned case the colored light is "*brought up*" for enhancement. It draws beautiful attention to what is about to take place. The "bringing up" and "taking down" are timed. There is a change in it. It is unaccompanied by any other happening appealing to any other of the senses.

It is no wonder the artist thinks of himself as a prince and king while others are thinking of him as pauper. He knows he has the infiniteness of the whole Universe under his consideration, when his inspirations are in process. Braced by the

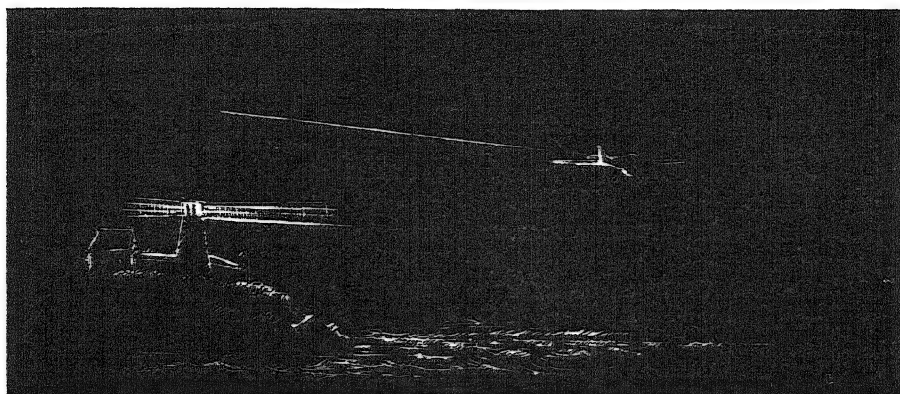
utmost, by his maximum effort and brain power, his public will know. It will mete out recognition accordingly.

It is true that Nourathar is a fine art which no other age could have easily brought about. The more impalpable the medium the more exigent the means. Numberless factors have had to be brought into fitting co-ordination and co-operation for this ringing of the color bells of so many hues at the instant's desire and need. In their form, of course, in their soul and spirit also. They seem to me to lean on both to a greater degree than is so in the other arts.

The soul, the spirit of the living man, is joined to his body here on the globe. It may not live except within the frame. It is here and now to satisfy these fully. This is another way of doing it. Doubt not.

نور قلبی

LIGHT OF MY HEART



## XVI

CHAPTER

## THE VOID

**I** DO NOT know that the *nothing*, the complete absence of the something, has ever been posed as having a high value before. It has an exalted worth here. In naught else can one so well begin at the very beginning. It is said that at the starting, light was laid on a carpet of the void. To use this same artifice to a different end here makes no exception to this suitability or appropriateness of its coming. It is in the absence of all light that all concrete things must, to the eyes at least, seem without form or being and blank. It is on this groundwork that light color starts its becoming.

This blackness of the dark, it is said, is still the natural state. Should suns burn and stars go, the residuum is lightless. It is barren of visible matter. We long to re-begin on this emptiness and so we go to the night with hope and eagerness. In our minds we can go back to it, so to get rest and surcease from what is.

Stars are but gleaming gems spattered on this deep of blackness. Jewelled feeling expressed through light must be also laid unembarrassed on darkness and its rested eyes for the seeing. In the present state of things it is difficult to attain the complete of darkness. Relief, even for a necessary moment or two, is hard to get from the belaboring radiance of this form of energy. Electricity has done its worst. Even artificial light is all but inescapable. Night and day there is always some light.

Lack of all visibility is an essential to the color envelope within which your light message is about to be made. The aura, the nimbus of its glory can then lie clearly felt athwart the black. So it can best be shown in all its trueness, mysterious or gay. Total darkness fosters the illusion of the nothing. On this the heaven and earth *you* are about to create can properly arise. It is darkness, on which the light will can best engrave its beauties.

Darkness is the silence of light. A performance at day calls, therefore, for window curtains impermeable to the sun's ray. No glimmer of dereliction in this is to be allowed. A full moon at night must be shut out also. At day or at night the artist must have his right and will as to the putting out all of the utility light that will interfere. The mesmeric counts even in this introductory duty. Should control of the general utility lighting not be brought to the console the artist must buzz to an attendant to bring on and put out the lights in preparation for the performance.

The front lights out first. With other light still present the eyes will not then note any awkwardness in the change. Follow with the utility light quantities as these are ranged further down the hall. A duplicate control for the general lighting placed as a part of the instrument is also possible.

It is best if such utility lights are not low enough to come directly opposite the field of vision. For bringing these lights on after the number or programme is over, the order of their putting out should be reversed. If this be done by an attendant at the hall switch box or panel, full understanding must be had in advance. Every detail is important. Buzz for each action in that calculated way to maintain the unawareness. Anyway, the expedient is good that will keep this handling of the "house lighting" unnoticed till accomplished.

When the preparatory darkness is established, pause. Even here begin to exert your hypnotic power in the seizing of just the right moment to begin, and the right moments to continue. There is a quiet within an

absence of light that will help you. Not too long or the assembly of would-be see-ers will begin to fidget. Not too quick or the retina will still be at distention, too dilated to get properly your very first whisper in light. Through a completely expunged visibility, give the eyes the chance to revert to their freshest capacity for seeing.

The very nature of the eye is pleased by serenity in the posing of the light thought. Beyond this the artist should proceed reposefully by choice. Leisureliness, complete composure is essential. "*Zeit haben*"—having time to spare—is an attribute of fine performance in more than one of the fine arts. No matter at what extreme speed the notes succeed each other in masterly piano performance and indeed throughout, there must be no scramble. *The capacity must be over and above the achievement.* Indeed, diplomacy between nations requires the same. "*Pas de zèle*"—show no zeal, is admonished. Indeed, in the general affairs of life it is well to: "*Glissez, glissez, n'appuyez pas*"—slide, slide, bear not down.

Such warnings are peculiarly applicable in the practice of Nourathar. The human eye must not be teased. Slow to see, it is quick to anger. It is hurt by rapid change. It closes its lids and refuses to look. The color change in shade and tint must be gradual and leisurely. Though the art roots in physics and branches in philosophy, physiology has its say.

The *pause* within the light play being made can also become a very telling point in the dramatics of the expression. Since this moment of darkness, this pausing within light-color play parallels the absence of sound, the following quotation fits:



"There are silences that set one's teeth on edge—it is a relief to break them, and there are silences that are gentler, kinder, sweeter, more loving, more eloquent than any words and which it is always a wrench to interrupt. There are silences of all sorts as there is speech of all sorts."

Such recommendations are not small potatoes. You may have heard of the quipster who spoke of women's clubs as organizations that spend a season on "the place of the comma in literature." I heard a great teacher tell a girl, who failed to make a sufficiently dramatic point out of a pause, "If I were at a concert and the artist played that in that way, do you know what I would do? I would take up a newspaper and read." The auditor's attention would be deflected from, quite possibly, attention to the whole evening.

Yes, the mesmeric, the hypnotic, the compelling is an essential, no matter how you manage it. It can be done. It is done by the greatest orators, the finest actors. The Sarabets artist cannot do without it either. The pause is one of the tools.

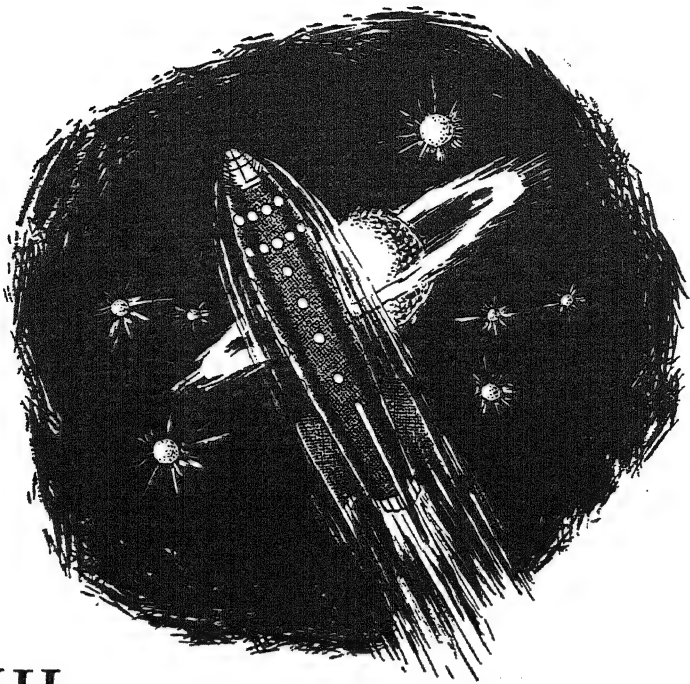
A rest in the continuity of light play may, indeed, be made so fateful and significant, the see-er will

count his heart beats as though they were his last—hoping for, and yet almost dreading the taking up the color theme where it was paused. Such repose must be a part of the inherent intent, a part of the form. The "Selah" of light can be very speaking. It can be made to hold a mesmeric enchantment and beauty—create an enthralled awaiting. Such a pause must have "it," which reminds me of the Englishman who, on being introduced to the present Duchess of Windsor, said he "had heard she had it." I presume this was at the moment when no one could have guessed the result of the most outstanding romance in history.

An unwanted, unexpected break will, on the other hand, be catastrophic. The audience knows when the logic of the succession has been interrupted without warrant. The very seat or bench before the instrument labels the play as a serious and noteworthy undertaking requiring undeviating attention from moment to moment. Its running meaning must not be tampered with.

So this beauty can come to one, peaceful as the first snow in winter, and luminous as the color on butterfly wings.





## XVII

CHAPTER

### CONTENT

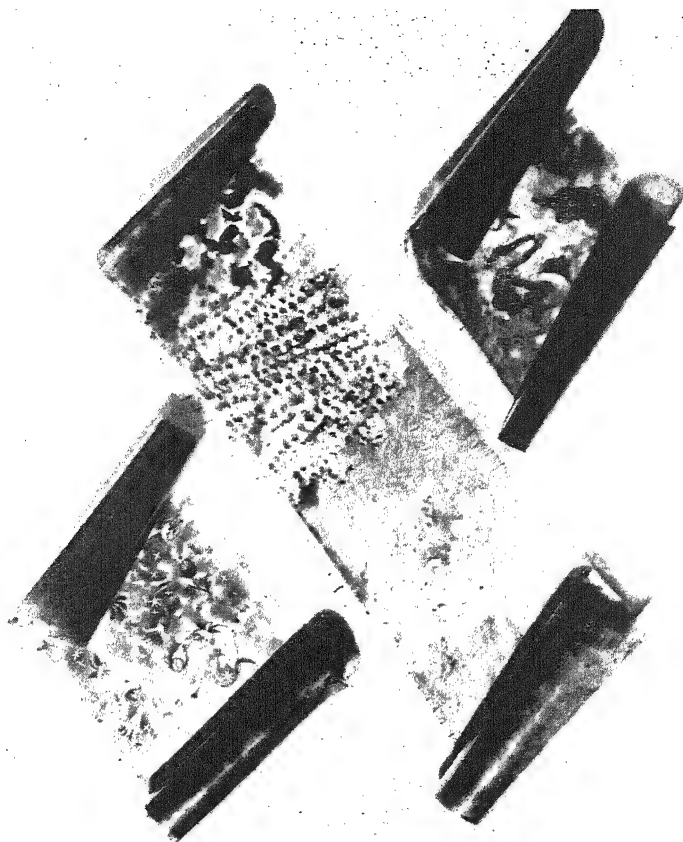
**I** THINK that one of the outstanding qualities in light-color play performance, such as is Nourathar, is that it is an envelopment. That it is something that enfolds you through your eyes, and it may be in other ways also. There is the feeling of a surrounding amplitude. It is of a unity, something as the great firmament outside is of a oneness. And this, to us, also reaches as though to the furthest galaxy and biggest star. For we are shut in, in it, yet sensing the far beyond. No matter if there is within this, the general peep of luminous points or decorative additions, it is the encasement that gives the feeling in chief.

Any other is but a minor in itself—a detail accenting the ends of the force as a whole.

A list of many adjectives could well be exhausted in suggesting the mental states just this variousness in the wrapping around can give. The *content* that may be infused within this art starts with this all holding. There is a universality to it.

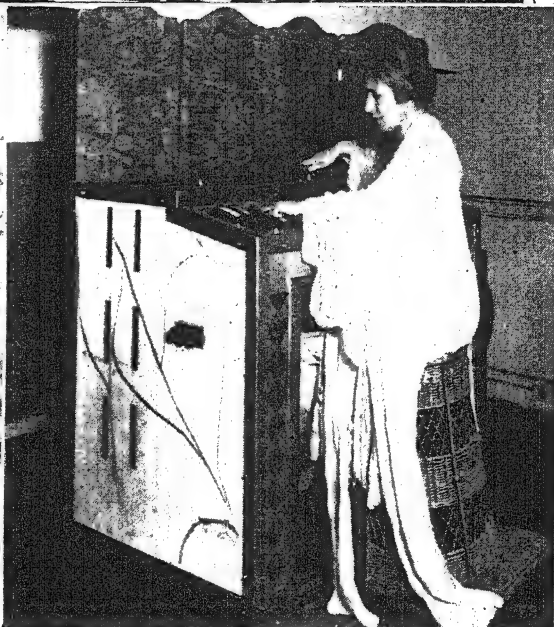
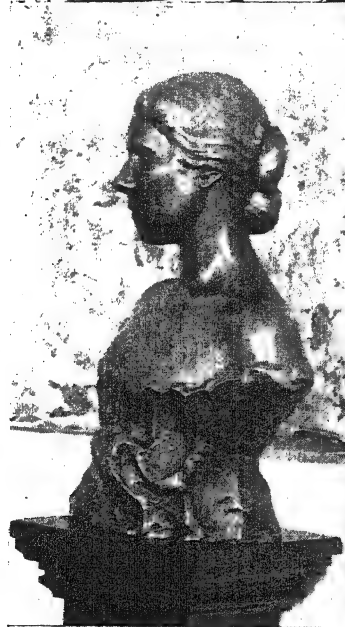
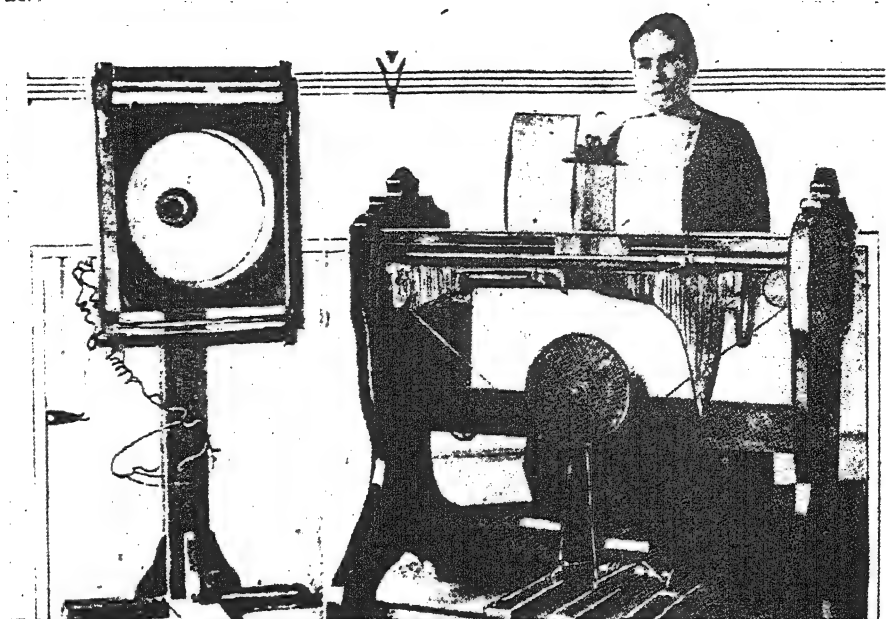
It can in first category be made a cajoling, an alluring into peace. To enter the precinct could at once cause a state of quiet or tranquility. Disturbance and agitation could well be shed at the door for calm and repose.

The artist will, of course, have all antitheses under his control. The



SOME OF THE EARLY EXPERIMENTAL STEPS TAKEN BY THE AUTHOR IN THE EVOLUTION OF THE FINE ART OF COLOR PLAYING ARE AS FOLLOWS: 1. IRREGULARLY TORN OR CUT PIECES OF FILM TOUCHED UP HERE, THERE AND HELD TOGETHER AT THE EDGES BY STRIPS OF TAPE. 2. DEVELOPED ROLLS OF PHOTOGRAPHIC FILM PAINTED IN A SUCCESSION TO HEIGHTEN A PARALLEL ART. 3. ROLLS OF ACETATE OF CELLULOSE FIFTEEN INCHES WIDE SPRAYED BY SUCCEEDING COLORS AND MOVED BY HAND IN FRONT OF A HIGH POWER LAMP.

SEE ABOVE: LEFT—A PORTION OF THE PAINTED PHOTOGRAPHIC FILM CONCEIVED TO ACCOMPANY DUBUSSY'S "AND THE MOON DESCENDS ON THE TEMPLE WHICH WAS." CENTER: FOR THE "TURKISH MARCH" OF MOZART. RIGHT: AS PARALLEL GOING WITH THE "PRELUDE" OF CHOPIN.



UPPER: THE WORLD'S FIRST LIGHT COLOR PLAY CONSOLE. NOTE THE HAND MADE SCALE. FROM THE PHILADELPHIA LEDGER SUNDAY ISSUE 1919. LEFT: AUTHOR'S BUST BY SAMUEL MURRAY. RIGHT: THE AUTHOR AT ONE OF HER LIGHT COLOR PLAY CONSOLES THAT WERE PRODUCED IN NUMBER

sombre, the gloomy, the sad could well come up his alley, as well as the joyful, the gay, the exhilarated. To induce a lively or enlivening feeling, we have seen by countless examples of actual practice is easy to him. I am thinking of the brightening of the white of the light as a push to climactic exhilaration.

But chief of all is the chameleon-like character of color itself. It may be made to be all things to all men. Yet, even so, it sets its own autocratic limitations.

There is an inescapable and logical taste that leads a color choice even as a halter about the neck. This will be difficult to go into through words. Literature is not color play and vice versa.

There has been a wide symbolizing through color. Indeed, such has been done through a wide range of any something that may be made to stand for a something else. It is a proof of the cogency of expressing via color. There is a convincing power within such practice.

Language is full of it. This cannot mean poverty in words. It must mean that concepts have some parallel inner states in common which allow the expressing through their meanings that which transcends analysis through words. That there are certain relations and connections not to be otherwise made plain. After all, values, qualities, quantities, extensions and in their aesthetic sense weights underly all that the mind is or has: "he is soft," "she is hard."

The French poet had reason with him when to him the vowel "o" seemed rather like a deep blue, while "a" likened more to a clear cold red. Here it is to be remembered that the

vowel "a" is given a different quality of sound in French than in English. The East Indian occultist, who makes an effort to symbolize a human's character by a color, has also something with him. It is only that the six true colors fall far short numerically in this sort of likening. It would be more logical to ask if the quality of personality leans to the "elephant's breath" shade or that of "London smoke." Such symbolizations are, however, not operable to the ends of fine art expression. The operable way to the ends required is, of course, essential.

I will remind you of the length and breadth that symbolizing through color has taken through custom in language. In this way a suggestion may be had as to the much color can hint at. Green for jealousy! indeed. It must have been a muddled, a dirty green or was it strength of green, or the color of the monster's eyes?!! White for virtue. That's better. And then, of course (sarcastically), "white" for diplomatic papers—a "dossier" so virtuous!! Red for rage. The bull liked it not. Yellow for cowardice: surely a puny, unsuccessful yellow. Colors have been given even moral qualities. "They quarrel." Enough! enough! There is so much of this that you know of.

I remember once dreaming of the value of certain happenings without clearness as to the occurrences themselves. It was a dream-jumble, held together by a common quality. It would seem that the categories have a concrete, a sort of material entity somewhere, somehow. It was as though the quality itself was a thing. It was as though it had an entity, a being apart from its connection.

*Of course, one can make content of*

*expression through laying out the values held in the spectral rays.* These may have preceded the categories. They may have been waiting for them. They may have been "a priori" to these. They may have enveloped them always. But there they may have had their play only through a second-hand transmission of themselves through the many ways it comes to us via leaf and flower: through color of primal mold or lichen. Nourathar uses the initial, the pristine, the first, the intrinsic nature of color itself. The content that may be put within its play, should it not be capable of leading next door to the unseen? At its beginning side at least? One thing is quite certain. The fine art of light-color playing can transmit messages of beauty not attainable by way of any other means.

As to the logical of its content, it may well be asked as example: "Why the rosey light" with the "And our mouth shall show forth thy praise" which was mentioned in the brief touching on the Old English Ritual in an earlier chapter? I might answer: "Because rose seems to me vibrant and living." Or I could say: "Because I might need the high in a golden or white climax more for other portions." Both reasons are good aesthetic alibis. A light-color play accompaniment is not meant to duplicate the paralleled message but only to enhance or accent it or add to it within its powers.

The possible leanings and leadings, this way and that within the scope of the medium, are so very many. Their turnings in various directions are extremely numerous. The variety well-nigh puts a strain on number. Even the unending interactions with-

in the artist's body have that to be matched through them. And as in the artist so as to these same interactions in the perceiver of the artist's message also.

In this art the symbolizing or matching or initiating through spectral progressions has been made orderly. *It offers the gamut complete.* Its very systematic arrangement of color range entitles it to conscious attainment of high fine art ends. It has, moreover, a reality in itself alone that is beyond symbolization. If one could explain the fullness of the how in so many words, it would not be fine art. It is a capacious womb for breeding manifold expression. It is said that three thousand four hundred names, artificially given to hues, have been collected to express some part of the variety. Long color cards do not exhaust just shades in "tan." And such are for dyes not for their far richer root source. They possess that infinitude that is capable of creating worth-while content through the vastness of the range.

Take, as a number pacer, the variety of combination held in the deck of fifty-two playing cards. How beggaring to these in number are the interactions of but 267 shade gradations interacting within the phases of six colors and their many possible full intensity combinations. Add their sum total in white for tint. In all these the artist is a free agent. Indeed the character of the vehicle allows him the agency free. And here is the apparatus that can lay them all forth at the moment's will.

The instrument of play has made possible a flexibility in the handling of this infinite variety. Such, that it may even meet the infinitude of mood in changing feeling. The in-

strumental means have put the medium where it may meet the artist's will. He may make it suit differently the differing moment, the differing state of mind. By differing artist also there may be worlds within worlds. For Nourathar to be used as parallel expression to poetry, music, pantomime and the dance does but make more apparent its expressive power. This it has in full degree without benefit of these or any other matter it may be made to go with.

Note well that the arts above mentioned, poetry, music, etc., are concerned with both: the outward world of the material and the inward abstract feelings. Though each of them is so different and varying, yet light may meet them all. Perhaps it is because it is not so hide bound by the letter, that light may invest them all with a degree of ecstatic they may lack in themselves alone. There is also the superb beauty of the color ray as an additional.

It is fortunate that I can point to the truth of what I am writing as a "fait accompli," as an accomplished or a proven fact, as a thing already done. Of the capacity of the art of light-color play to effect a response, there is now no question. By testimony of highly cultured members of an audience it can at its best make the "chills" of delight "course up and down the back." Myriads of hands have clapped the louder at the stimulus given their feelings by a brightening of the light at the moment of high climax. That it can cause exhilaration is proved beyond peradventure. And the printed testimony to this has come from more than one form of human activity.

It has been really well done on but

few occasions. Even badly done, it has won acclaim from millions of people. By measure of money also, it has won.

Is an expression laid out through light-color play only effective through the suggestions of symbolization? Is it through what seems to one a comparison in kind of aesthetic values? I think not. There is reason for holding that a result, through it, is gotten on the systems of the human body through existing accords inherent to itself alone.

These rays are penetrating. They are pervasive. To them the flesh is not "too, too solid." Though they melt it not, invitation to entrance within it is theirs. Moreover, it is said the spectral colors hold this penetrative capacity in varying degrees. Why not? Since the blue rays are known to be finer than the red.

These rays are of the beyond us. They are of the before us. Indeed, they are intrastellar. They helped the causing of us to become. All the while the sun was inbreeding within our tissues a response of its own kind to darknesses and brightnesses.

Fine art in the hands and under the hands of man raises this initial influence to that high point or "n'th" degree that hovers over and above experience. It is an artificial. It supersedes the natural in beauty.

Lucky is the artist to have the finest of all visible materials as his tool to express a content with, as he wishes. It is a material so devoid of dross. Its results may be like unto the essence of things all. There is well-nigh no limit to the kinds of content that may be infused into light-color play performance.



## XVIII

CHAPTER

## BRIEF EXAMPLE

THERE was once a Frenchman who is said to have killed himself because "he was tired of this buttoning and unbuttoning." I doubt if zippering would have made the situation any better. On occasion, everybody will understand the nervous exasperation and nobody understood it better than the great, the much beloved, the unapproachable Chopin. His music showed it. Showed it in that well-nigh miraculous way in which the strictly abstract arrangement of notes can express the subtly inexpressible. Inexpressible, though by words.

Oceans flow and moons travel between the two extremes; those of suggesting the nervously exasperated by light-play nuance and simply "dousing the glim" when the waltz music comes on that it is wished to accent as dreamy. I have seen both lengths and breadths come about since my embryo conception leading to Nourathar in 1905. I cannot say how much now the delicately expressed music of Chopin has been animated by an accompaniment of suited lighting. I probably, I undoubtedly, have made the only *light score* to any of his music.

But Chopin is used much by the profession of dancing and the professional dancer has turned to light-

color play, of a sort, often for emotional support, since my development of it as a means of expression.

One dancer, sometimes mentioned, made a world-wide reputation through having discovered that a colored spotlight thrown on colored textiles, whirled about her, made a novel appurtenance to her costume. *The stuffs she whirled were dye colored.* I know the great difference between this and causing such spectral color to appear as it in itself is. Tied to a dye the color cannot go. Besides, there was an entire lack of any conception of Nourathar kind in what she did. There was color lit by light. She is sometimes mentioned. Her vogue was too early to count for anything but just the lighting up of textiles. The whirling about was the thing.

Since I somehow amalgamate readily with the difficult, let me lay out before you, as an example of the art, a light-color play conception as accompaniment to the "Second Prelude" of Chopin. I mention the difficult in connection with it because the work is so very subtle, yea, abstruse in its content.

The piece is extremely short. It takes but three-quarters of a minute to play. Nevertheless, it is piano music that makes high technical de-



## *From the Author's Scrap Book*



A PROFILE SILHOUETTE OF  
MARY HALLOCK GREENEWALT

*Made by a well-known silhouettist*

What some of the severest critics of the country write of the author's performances as piano recitalist. ¶

MR. H. E. KREHBIEL, in the *New York Daily Tribune*:

"Miss Hallock displayed a fine clarity of exposition and reposefulness, and a lovely tone always."

MR. HENRY T. FINCK, in the *Evening Post*, N. Y.:

"She revealed her intellectual and emotional grasp of the best music."

MR. W. J. HENDERSON, in the *New York Times*:

"Her playing was admirable."

MR. JAS. HUNEKER, in the *New York Sun*:

Speaks of "the delight of her Chopin playing."

MR. HARVEY M. WATTS, in the *Philadelphia Press*:

"Miss Hallock has a distinct personality in all that she does; has something to say, and says it uncommonly well."  
*The Tacoma Daily Ledger*, Tacoma, Wash.:

"Miss Hallock played a splendid program in splendid form, and those who listened felt that the occasion had been a precious one."

mands. The left hand must conquer the executing of double notes continuously throughout. Though the whole takes but forty-five seconds to play, months are needed to teach the several sets of two fingers, of uneven strength, of differing size, differently placed on the left hand, to successfully grapple with the continuous succession of dual notes precisely produced together. I have practiced many hours on the piano just to conquer the technical difficulties of this little "piece."

The word "little" refers to the time it takes for its presentation. In itself it is a "tour de force" of first magnitude. The expressive attainment is great. It suggests the nervous exasperation, the attempt once, yet once again, to smile through bitterest tears—then the final sigh at inability to conquer. How many, how very many, how *too* many have gone to their deaths, such a sigh in their hearts.

#### *Used in Experimental Steps*

I had kept this particular number in careful review before me, for many years. Experimentally, I had developed—in one way or another—its fitting light accompaniment. "What!" the attorney for the parties I was suing said, "you made these pieces the theme for this other experiment too?" "Yes," I answered, "there were enough matters for consideration without taking new compositions for the purpose also."

So whether it was pieced pieces of transparent dye medium bound together in an experimental sequence determined on—whether it was several yard strips of developed photographic films painted for rolling in front of a stereopticon—whether it was dyed acetate of cellulose for

moving in front of an arc spot, or whether it was light-score notations for use through the several progressive Sarabet developments, this little composition persisted as a good vehicle for a "vade mecum" of the art.

I knew what I wanted. I had put the piano number in my repertoire to start with. I had conquered it up to "concert pitch." The means to the light end, the right apparatus for play, I had found, to my cost, was not so easy to arrive at. Such had to be brought about by indomitable will—I mean an apparatus, commensurate to the task as a whole or in part. This was forced into being only by repeated experiment and trial.

#### *The Light-Play Opening*

Let us say that you are about to begin the light-color support to the "Second Prelude" by Frederic Chopin. *You* are seated at the Sarabet. The *pianist* is seated at his piano. Now call on the strongest that is mesmeric in you. While holding the attention in advance, eliminate gradually the utility lighting in the auditorium. A groundwork of the black, of the *nothing* is needed.

Make sure the blackness is complete. It should be a darkness so thick that you could "cut it with a knife." Make sure, make very sure, that not a crack or chink lets in any bit of thieving light. Such light as has been, and may be again perhaps *purposely*, sent in to steal the creator's thunder. Be careful of every need. The least unwanted light can destroy your effect.

On the lap of this darkness is to enter in the ominous, the tragic. *The mesmeric force* in you is essential. It is, however, a mesmeric supported by your *performance through light*.

HERE WE REALLY HAVE SOMETHING NEW.

You look across at the musician. This is to make sure that you both combine on the same moment for starting. I say you "look across" at the maker of the music. This again makes the point plain that it is a different instrument and another artist who produces the music. I repeat, and it cannot be repeated too often, that you cannot make Siamese twins of the eyes and ears. They are two entirely different senses. The automatic in one or the other is another story. It does not wipe out the above fact. It takes two hands, two feet to handle the light play alone. You will be sitting at the Sarabet. The musician will be sitting at the piano. You may both make a part of the color picture. You may not.

To stress the bringing about of the complete darkness first. How restful to the eyes! How quieting! How promising to the whole being it is! It was a leaving the audience in complete peace for what was to come.

#### *The Light-Play Description*

If bread were cheese, and cheese were bread. If words were music and music words, how simplified would be the task. To describe commensurately even a short musical composition, in order to make visual to the imagination a light-play setting suitable to it, is difficult enough. Some sort of an attempt we must make. Laggardly, we resume because there is no choice but to resume.

#### *The Tempo*

The metronome mark that heads this composition is "Mm = 50 = ♩." The time equivalents of the quarter

notes are to go by at the rate of fifty per minute. This, it will be seen, is a little slower than the second rate. It is the slowed-up pulse of the body lacking in supporting vitality. With the pendulum weight placed opposite the numeral "50," the pendulum arm of the metronome ticks back and forth fifty times regularly to the minute. That is the meaning of the metronome mark given above.

This is also at the slightly slower rate than the normal average human pulse of circa seventy per minute. But then, by way of digression only, a man depressed towards the point of exasperation would not be blessed with the abundant in pulsing of life.

#### *The Light-Play Metronome Mark*

The metronome mark for the light score would be the same as for the music. There are two reasons for this: (1) The pulse is in common to both. It feeds uniformly both eyes and ears. So, of course, it is common to the dual aesthetic considerations. Both arise therefrom. (2) The feeling through light would ask for the same tempo rate as the feeling for the music.

Your light score could not, of course, feature any nomenclature used by music. A dot repeated at equal distances on a sheet suffices for the time unit of the light play. The vertical line denoting the bars of the music will help orientation of the duo sense. Your light score could be headed: "Mm = 50 to the . (dot)."

#### *The Light Groundwork*

The groundwork of the feeling is sombre, tragic and deep in its import. It is low.

You cause to come the least minimum of light in place of the ushering

total of blackness. This minimum may be a greenish darkness or, indeed, you may find the least perceptible of two other colors mixed gives you what you want. The painter's art knows how consummate can be the mixing.

Handling color in its light-ray phases is full of astonishing results in the admixtures possible to it through the Sarabet. The one experiencing it for the first time is overwhelmed with the unbelievable choice he can range over at but a touch.

On this groundwork, there enters in through the music a small, very short high asking melody. It is as "a ray of hoping." Here you may actually produce a slant of true blue on to the light *being*, let us say. It will pierce your darkness of the moment. Again the sombre deep engulfs this hope. Nothing can be lovelier than looking at this gleam of radiant ether sent across the lambent lacking darkness. It is a very hope shining midst despair. Looking at it and understanding it in company with others is a staff to life itself.

The dark groundwork is as a background on which a tracery of intent is embroidered through light without design. It is something as, on the depth swell of the ocean, a crest of wave or tracery of spray may be made to become born not borne; or born and borne.

Two bars, eight beats (less than eight seconds) establish the opening dark, in the greenish or such-like modification of itself. Such as may be thought of as at bottom of a black sea. On this then the bit of melody, like a futile attempt to smile through bitterest tears. Back again the hopeless dark and you fade out

your incidental gleam of brighter ray.

Again the same melody on a higher key—a still greater effort for hope. The inexperienced artist will want to turn, perhaps all at once, to another color for this melody on a higher note. He will want to turn, perhaps, to a rose tinge or violet. It is like a bull who, finding himself in a china shop, wants to spend it all riotously and at once. Follow your color scale; don't jump through it. The practiced one will take a still higher blue or a blue mentored by a little of its neighbor green as brightening bit, as being in still better taste for increase in denoting a hope a shade more ardent.

The remaining light of the wearied mind, attempting to shine through the shrouded gleam of reason, again is overwhelmed. It was but like a slight parting of the clouds on a continuously ombroed day. Then the long drawn-out sigh, which the music seems to hint. The following of it is an ebbing in nuance. . . . There is a significant hush.

At the last, patient patience seems exhausted. With a long decrease of any brightness whatever, your three-quarters of a minute light play ends as the music ends also.

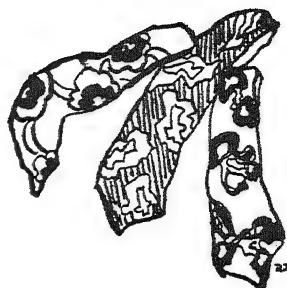
Wait, wait. Not too quick. Buzz for your hall light way at the back. Signal leisurely for those still further forwards. Wake up your audience not too roughly. Jog the eye not inconsiderately when its enchantment is over.

This little work has to do with feelings, not with imagery of the concrete. *With reason you light the spirit.* It is the ideal clothed with an actual. And in the light are both the ideal and the actual.

# XIX

## CHAPTER

### WHO SHALL PLAY THE ATHAR AT NOUR



WHO shall play the athar of nour?

A dog or cat scarcely could. Any human may. That is, providing they had some part of their hands and feet left, which is problematic in this day of "global"!!! war. Eyes with which to see are essential. Outside of this many candidates for rehabilitation could qualify. They might be maimed much so far as their body was concerned and still move the scale handle or push on pedal. Anyone that can manage just these is entitled. To the deafened it would be more than a Godsend.

It might do much "for the man who was." You may have read of "the man who was." He had been a tortured prisoner, under extremely cruel masters. He had come back over a long trail miraculously, a bundle of rags in all that pertained to him. The situation is summed up in: "A flight from Siberia may fix a few elementary facts in the mind but it does not seem to lead to continuity of thought."

I have a great sympathy for "the man who was." I have many a time been made to feel like a woman "who was." That is in the treatment awarded me in this labor. It is not easy to overcome the mischief wrought in one's self by the deliberate undoing of one's all too eager, avid and anxious efforts. It is not pleasant to one's health to face thwartings, denials, hurdles and every means by which discredit can be thrown on one. I will remind you of

the whispering campaigns that are known as having also been tools, of their ways, for big business connivings. "Whispering galleries" they have also been called. All this is not exactly a joke to the one experiencing what such underhanded, and in the open done, enmities and animosities can do to one.

But to come back for a moment as to those bereft of even continuity of thought. It was my privilege to play a light-color performance or two in an institution devoted to those whose lack of hygiene consisted of the mental sort. There is not the least doubt in my mind that these viewers were at least temporarily jogged out of their particular kinds of this particular kind of illness. The handling of the instrument by all or any of these may be a different matter. Playing it for them might also do much, since the medium of light digs into the earlier, the beyond of the coming of the various convolutions and developments in the brain matter of the human.

There are many directions to viewing the point as to who can best profit by playing the art. There are the disappointed. Those who find themselves defeated or who have seen themselves fail in the fulfilment of their expectations, hopes or desires—those who have been prevented from or frustrated in the attainment of

their plans—those bereft of their earthly goods may regain a peace of mind by playing a lambent flame or two for both courage and delight. For in this art they can produce worth-while results without the vast amount of time and practice needed by the other arts.

For look you! Everyone has a certain taste to exercise. Who has not chosen a necktie for his suit? Who has not picked out a colored ribbon for her dress and hair? All and each may live a part of themselves in a world of abstract color, devoid of distraction of things that can so well carry their own teasings as to good and bad. Feeling then leaves the play utterly unhampered. Indeed, the playing of Nourathar could be part of the activities of anyone who cares to embark on the new.

People, as a whole, are too modest as to their reach, or have they been artificially tamed into that state? Over and over again individuals have said to me: they "love to listen to music," but "they are no musicians." "For the love of Mike!" What are they but musicians under their skin, if they love to listen to music?

But here comes the question of technique of performance. *Light-color playing requires no initial technique.* Some result is gotten by anybody at once. This is thanks largely to the medium itself being ready-made to hand. The player of the Sarabet does not create it. He is spared the soul-harrowing preparation for this needed by other fine arts.

The *quality* of the results is a different matter. Jogged by some lessons in harmony in which beginning was made through a melody and not by a "figured bass," I got together a

group of would-be composers to teach. The ordinary woman, the one of common quality, pieced together an ordinary melody, the melody of common quality. The various distinctions of mind that were part of the individuals, making up the class, showed themselves, even in notes fashioned into a tune. I remember in the famous international piano class that met in the villa at Währinger, Weinhaus, Vienna, a student being told: "You played that scale (!) in a vulgar way." The rarity of the output will vary according to a wide range of qualifications.

We have had proof enough "in all conscience" of colored light being played in a "vulgar" way. This, of course, is due, in large part, to the vulgarity, the coarse commonness of thought shown in the crudeness of apparatus, of the stuff!! put together anyhow through which such play is at the moment being made. This, I think, has been a chief reason.

It is not fair to the player. Give the people the tool worthy the fineness that, in some degree or other, will be found lurking in their natures, and the results can the better show the admirableness in them. This, of course, is not all. Through vulgar people everything becomes vulgar. There has been too much reaching down to the lowest in man in many activities in this generation.

Every soul has this proof of divinity: That divine things delight it. Everyone's soul is a fire that may dart its rays through the senses, if given the right instrument through which to show. The rainbow forewarns of the sun on a rainy day. Let us earnestly hope it will do this through this fine art also—and that it will delay not too long.

## XX CHAPTER

### WHICH PLACE IS BEST

**L**IGHT-COLOR playing, as an intimate of the human being, is not for the great outdoors. I think unroofed, unwall'd arenas may be pretty well shut out of the considerations. Though, there also, the powerful in light that is crude might have some bit of its effect. It does not do to find too many of the necessary factors missing. Even a great expenditure of money in the equipment may not make up for the handicap.

See with what niggardliness the true color rays in nature are shown on this globe or about it at large. In itself alone, this suggests causes standing in the way of a wanton showing in the outdoors. It takes special bits of some sort, perhaps chemical, to show forth green in leaf and whit of color in flower. The right slant in dewdrop and celestial moisture will do it. And so, we get but an idea of the stupendous amount of color potential lost out of the sun's budget of such.

To wash the athar of nour, through the alembic of man's soul, needs its special homing. It needs the spot that can properly contain it.

I believe in shrines. I believe in places made sacred for, or by, historic or other associations. There is to-day great need for the desire to enshrine, to cherish devoutly. It presupposes capacities to value and appreciate the very centre to kernels of worth. A diminutive little garden, in a porcelain holder, stands before me on the desk. It has on it also, as part of its arrangements, a propor-



tionately minute little facsimile of a shrine. This nestles under a green leaf. It suggests, small as it is, the subtleties of spiritual feeling that have accrued in man, of mind and pervading influence. Such ones as can be fostered, even as gardens and flowers, are cherished.

The stained glass window has been made well-nigh sacred by association with grandiose cathedrals and places of religious worship. A shrine can, in its turn, sanctify the possession. It would have been suitable at the starting to sanctify so precious an appearance as this one by interiors hallowed to and by it. It may still not be too late. Perhaps it has spread too far where money took it.

So we approach, as it stands now, the practical gist of our chapter: What are the places where Nour-athar may best be practiced? I shut out no possibility, and neither should the architect and builder.

A charming woman could well hanker after a small Sarabet in her boudoir. It is well known how one discriminating socialite built a whole room about a single masterly and beautiful canvas or painting. The same soul is said to have been able to commandeer the playing, for her alone, of music by the incomparable Paderewski. For that occasion she is said to have had many violets about. Was it the color or the fragrance? It was the all. I am sure

that, had she had the means, she would willingly have given the flower and man a supporting light-color setting of play worthy of them.

It is well to give any beauty its holy niche. It is well to change occasionally the beauty shown within the niche. This, this fine art can do in a "ne plus ultra." in a nothing more beyond.

Speaking of boudoirs, I am reminded that silvered walls are now often made a part of such—and a very nice innovation it is too. Indeed, a silvered surface wallpaper has gained a no small vogue in recent years. Here, too, the indirect influence is seen. *No place need be shut off to the art.*

Mentioning a "little" light-color play instrument above, reminds me to make the point that such a unit may be of a smaller color capacity or larger. You will remember the simile as to the kite and its possible tail additions. The Sarabet may, indeed, consist of but one scale path and half a dozen actuators and lamps. This would, however, restrict the powers of the artist to show. It is well known that, in music, organists hanker eagerly for the world's biggest organ.

The very first light-color play console I made was of such an initial capacity. That is, it had but one scale panel. At two different times, two different young men played it to music made by myself and others. (This particular instrument may still be seen safely guarded in an outstanding institution for objects that should be protected for the future to know of.) The point I now want to especially make is that both these young men begged to have the instrument placed further available to

them. They had found out to their cost that the right apparatus is an essential to Nourathar activity. That right result could not be attained without it. They had been delighted, yea, enchanted with the results they could get through it and in no other way.

This subject, through its apparatus, has also developed a value in matters not aesthetic. Its scale of least visible increments is an essential to any laboratory devoting any part of its time to color. It must be a part of any equipment of such laboratory. Without it any attempt to label shade and tint to their complete extent in standard recordable fashion is an impossibility. I would respectfully draw it to the attention, as such, of all institutions of learning. There is this potential, the adjunct to learning, where such might not be expected. So the list of interiors where the Sarabet could well have place is unexpectedly extended or expanded.

Those reckoned without their host who thought in their minds or spoke outwardly: "What! she expects to feed the public on such minute potatoes as least visible increments?" In both art and research the despised minute has its indispensable value. Even as for research so for perfection in exposition.

I have been told that certain clever nations, or a certain clever nation, has evolved an artfully dexterous, indeed a very ingenuous way for thwarting patent thieves. The expedient was simplicity itself. An essential factor was left out of the specification of the application.

The reflective metallic surface, or similar provision, is a basal need, for properly showing the spectral ray in



all its wide variety. The results are effectually hidden without this unsuspected supplement to the apparatus per se. Its lack has been a protection.

This need is a lucky one. It has done much to safeguard the art and, indeed, the whole huge labor from being quickly rushed into.

It is the silver surfaced within which play of least visible increments can be best made to spell all its sense. The color ray, at its best, is extremely picky and choosy where it will allow itself just to be seen, without mentioning that which might be worse—a dirtied aspect of itself.

Man has made an unconscionable lot of different kinds of interiors wherein people may sit and see. Many have already been tried out for this particular purpose.

The practice of Nourathar rightfully belongs there where humanity houses its loveliest. Let us mention music, religion, the drama, and further.

A friend of mine made a custom within herself of ranging her friends as an auditorium seating is laid out. Those she cared most for she thought of as having honored places to the front. Others came further and further back to balcony and amphitheatre. Some, I presume, were completely shut out and others, I take it, were plunged within an expunging outer darkness.

So it would be a nice phantasm to make a scaled choice of interiors that would seem progressively best fitted for this art to thrive in.

Any interior may be made suitable and available to it. The discretion is up to the leanings of the individual mind, as well as to circumstances

governing exchange. The capacity and leanings of the architect also have their say.

When I write of the uses to which a laboratory can put the various novelties proclaimed by this instrument, I am reminded that this labor, as a whole, has already had a share in laboratory development. I see in a booklet issued by a large "concern" certain advances made that of a surety hark back to my correspondences with them.

The pamphlet dealt with colored films for color photography. "That is the true spectral blue," I said, as the page was shown to me. "And there is the true spectral yellow." It was enough. I saw that the fat of my making had got into the fire. One world of business had tumbled to the fact that for color, the sound, the starting point was to be found in the spectral ray. These were the crux, the orderly base in all color work.

Nourathar must be given a credit in this also. Those dyes yielding a transmission of the *true spectral rays* are the orderly foundation for color photography. Any random bandying around of disorderly color carries with it the haphazard, the lack of the sure. It is a blocking of the way. It is a blind alley. It is a trap.

It is fortunate that these works of mine, looking to objectives still finer, have borne fruit in doings that have indirectly profitted by them. There are many resting spots along the road to the vanishing point.

It is a mistake for big business to think it can forever escape punishment for not seeing to it that the individual, through whose very life it has profitted, is not given his deserved meed.

# XXI

CHAPTER

## IN COMBINATION

WHOEVER thought that the world of affairs would have to put an electrician mechanic in a dress suit, on a moveable platform, to get a fine art means of expression going. But such was the case. And such are the times. Of course, a mechanic could have qualities to make an artist but think of the difference in the two vocations, think of the years of training needed for one and the other.

The union of electric stage workers has decreed that none but they should touch electric equipment. So it was they that were clad in dress suits as light-color play artists. It mattered not that they knew only their routine duties, which did not exactly include a knowledge of aesthetics. They had taken the bit in their mouths. It may be that through personal profit the big ones that could have stood in their way went along instead.

The little sets made up on the stage, of dance and what-not, made a break of this newness into the field of entertainment, as a whole, easier.

To accompany a solo dance act, or "Adagio," would be, I think, the simplest start for a going-with, a combining by light-color play. Indeed this has already proved the case. Both are visual. I might say both are easily visual. They hold the eyes without too great effort on the part of the beholder.

One other hurdle that the art has had to surmount is the length of time allotted to various presentations. So-called places of amusement



apportion the time taken by this and that act or overture to a nicety. The least possible amount of time is allowed these. This breeds a certain haste that may easily be incompatible with repose and the right unfolding of the light-play idea. It is too much a matter of "zip, boom, ha!" or bah!!

This shortness in the time creates indirectly the harping on the whole-sale throwing on of a crude color of the light wholesale to the exclusion of demand of nuance. It causes neglect of the subtleties held in the scale at its starting up from the utter of darkness. It is playing on the climax without benefit of the essential beginning. It is leaving out all the hues and playing only on the stark red, blue, green—any kind of these.

A wrong is bred against fine art, as a whole, by this hurry-scurry. Even the music is mutilated. It is curtailed to suit this apportioning of the amount of time. It is altered, sometimes beyond recognition, that it may fit just five minutes or seven.

I believe much money might be gained by that manager who would make a point of peace and serenity as a major quality of his house of entertainment and its offerings. The public might want to be invigorated

through being quieted, without having to go to sleep over the mediocre offered it.

There is almost no limit to the conjunctions possible to accompanying by light-color play. Its very nature proves this. The proceedings of stage, of theatre, of church come at once to mind.

I do not shut out the fine depths held in beautiful poetry exquisitely declaimed but music can be still more abstract. The consummate attending by light-color play on beautiful sounds, at their highest, subtlest and best, is perhaps a supreme test. The all-comprehension in scope of light and its color is equal to this task as it is equal to so much besides. After all, why should not the light of the Universe have *that* with which to encompass by art all art.

The volume needed is no hurdle. Whether it is the output of old and even antiquated instruments, singing delicately through the quiver of their aristocratic nostrils, or a modern orchestra of great size and volume of tone, the scope offered by spectral ray may through artistry match them all. There really is no easiest, no best for the making so lovely a jointure. The perfect is difficult of getting at all times and through any means.

But there is a certain amount of individually conceived and affectionately applied coddling needed for the perfecting of fine instruments of expression. It is not wise to consider their form set as standard for all time even though the basic essentials, such as must be there, have been properly unchangeably provided. Used in combination the high development in the instruments played in company with them should

be equalled. There can always be still much that awaits the chance to be done. And this refers to all the separate parts that together constitute the Sarabet, the instrument through which light-color playing is performed.

Such right developing cannot easily do without that special person who, for one reason and another, happens to want more than anything else to perform this service. It must be that *one* who happens to have the intense desire to foster the implement to its very ultimate of excellence.

In the particular world of large financial gain, quantity production, too soon gone into, is the dread of dreads. Its ways and possible consequent results are most to be feared. These can be destructively previous and destructively crude. Quantity production can, in many of its aspects, perform best that which has been labelled as a "nigger service." It will try to by-pass the fine implement for the finest result. It can be, in a way, the sentence of death to any development "that it is not a manufacturing proposition," as they call it. It requires a fine, a patient manufacturing effort to bring out, to circumscribe the choice needs for so great a variety in beauty for the handling. It can even destroy the embryo beginnings of the right aim. This effort has been expended on musical instruments. It can be done again for this form of expression also.

I don't know how it is possible to get around this Rhadamanthus of modern times, this measuring so much by the "quantity production" scale. This is especially so because it has every means at its control to thwart the will of the individual.

This one cannot do the work and buck the avalanche that can so easily engulf him and take away all the profits of his labors. I am afraid most countries have been inoculated with the situation. Perhaps India and its East Indians might be ones who might, could and would still be the ones to provide careful labor carefully, for the great love of what they are doing. As a whole, they have soul for patience. They have been taught not to disdain laboring alone and not "en masse" for mass.

What is known as the "legitimate theatre, the legitimate stage" must not be forgotten in a chapter dealing with the combining of light-color playing (in capitals, please) with some of its forms of activity. The capitals would distinguish the spectral rays used in themselves as means of human expression from just the glimmers to see by. To feel through is a different matter from observing by the eye alone.

Good ink has already been spilt as to the novelty, in its connection with the stage of drama. I mean by this that good, very good literature has already been offered on the subject. This confesses that the lighted stage, lighted as to its soul, "is yet to be created." It acknowledges that so far there has been but a glimpse. Too bad. It has been told and shown for so long. An unending queue of big business had first to be waited on. Waited on till it got into position to corral all the gains. Alas! With them it was ME and MINE, no matter what the crime.

The inking brought the producer a lively shock. A startling agitation of the mind, a penetrative emotion followed the innovation. The theatre, after more years than necessary,

tumbled to the livingness of light as a co-partner to quickness of its stage characters. It recognized an inherentness not previously reached as being a part of each and both.

At last the producers saw light as an actor, as a performer. That it could be made a subtle elixir of intellection within which the drama could be helped to manifest itself in its inmost reality.

When so seen—within Nourathar—the characters are transmitted by the rare light of the imagination by the rare imagination in light: radiant, powerful, subtle.

The stage is rapidly being brought to the realization that by this art a scene may be animated *from moment to moment until it seems to breathe*. The true life of the theatre is in it.

All hands proclaimed that it is a different light. One that should also hold the fort on the stage of the drama. Authoritative voices found it a precious experience: that of being made aware through it of each instant of time as it passes.

Within its clearness everything is perceived, is understood; everything seems to be known. The lucid, the penetrating, the wonder of it takes its place as suited both to feeling and its action.

This scoring of the light play for the stage becomes akin to an incantation. Elemental energies arise. The moments have been found as of the most precious.

It is through these influences that the stage was forced to even tumble to a real purity in cleanliness—of its sets, of its construction surfaces. This only could halfway show the exigencies demanded by the light ray for its right seeing. Neutral colored



MARY ELIZABETH HALLOCK (LATER MRS. FRANK L.  
GREENEWALT) AT THE AGE OF 14. TAKEN AT BOARD-  
ING SCHOOL



MARY HALLOCK GREENEWALT ABOUT TO START ON  
HER MOST EXTENDED CONCERT TOUR AS PIANIST  
THROUGHOUT CANADA AND THE WEST IN 1912.  
THE ABOVE PHOTO WON A GOLD MEDAL AT AN  
INTERNATIONAL PHOTOGRAPHIC EXHIBIT

reflecting assistances followed. There are now even shining floors to revolving stages.

But in the long quiet hours of light rehearsals, does this still mean that the light support of images of high vision and upheaving passion must still be shouted in orders to electricians (of the stage workers' union, if you please) on ladders? Does it mean still the hideous labor, its unwieldiness of moving the countless paraphernalia, changed from here to there also high up in the air?

Lighting a play in 1941, we are told, is "arranging and rearranging the lamps (sic) in an infinite variety of combination. There is rigorous

training towards these matters in schools and colleges.

Wake up, theatre! There is a central control console at hand, and but one artist needs be seated thereat. The controlling mind of the stage manager and play director can do the proper seated in a front seat, pencil and paper in hand. Or in his studio he can jot down his light inspirations at his body's ease. It is: "Put out the light—and then put out the light." But how creation width the difference.

So, for the good of the theatre: "Observe her. Stand close. How come she by that light? that now is her command. You see her eyes opening but their sense is still shut."

## XXII

CHAPTER

## NOURATHAR OF AND FOR ITSELF ALONE

**H**OW much body has spirit? Is there spirit pure and unadulterated? Does spirit in itself alone have nothing of the concrete material? Something is there. But what a difference in that word "something" if a little space is left on the line of writing between its first part "some" and its second part "thing." There is reason to hold that light has body; that it has some material tangible as a part of its substantiality. And this, no matter how the quanta or wave theory of light or indeed the both — quanta-and-wave theory — is settled.

I am perfectly willing to believe that, whereas sound is but an impact on matter and nerve of the ear, light is an entrance not just a striking within man's body. That it is an entrance into it of particles new.

Nourathar would, then, have a tangible in its make-up. One with which to *materially* cause it to speak. But in its message it is a very spirit. It is a spirit pure and unadulterated so far as its expression capacities go.

Everything starts with an "a," "b," "c," en route to the "x," "y," "z." What likelihood is there that the fine art of light-color playing will some time be practiced of and for itself alone? That is, without its supporting of any of the other arts?

The road is not easy. Special arrangements are required, as these have already been explained. But once this is done, there is a miracle in resource of and by itself alone placed ready to the hands in the playing of ray sense. The medium alone, made to appear in all its pristine glory, is a pivotal point of unques-

tionable, unbelievable beauty. How much else has it to draw the crowd? As my music master used to say: "Think in the progress you make, would anyone be willing to pay two dollars to hear this?"

Let us suppose. Let us grant there is an opal large enough to hold you. Could you not gain quiet and a serene release by biding a bit within it? Imagine the pointed eggings of sound gone. The teasings of design forgotten. "All the world outside is but bread and cheese, and all the sea is ink." Would the hues of all the jewels, deliberately made for your pleasure, not interest you? Could this not be breath taking, as when you hap to feel the domed beauty of all the outdoors on a blue-black night? And such but as one of the infinitely many brighter phases offered you? Would it not be a height in experience within a hallowed spot?

Back of your eyes are feelings. Though these feelings are embedded within your selves, they are open to be played on. They may be performed on by hues worthy of their own gamut of sensibilities. Certainly within this range there can lay suggestion of quiet and exhilaration, comfort and delight. There is in an audience the company of others, too, to grasp the hand in satisfaction or be too engrossed for even this. A pleasure shared is a benefit multiplied. In this case it undoubtedly can be one, gotten by play of spectral color alone, unaccompanied, uncombined.

Not for long. Ah! no, not for long. The most beautiful experiences can be the briefest. Perhaps just for a moment or two or longer. The right artist will well know how long he

can hold you. It may be that for a brief length of time, even the guiders and schemers and makers of mammoth and monopolistic business can have their fangs and their claws, hoofs and horns yanked out by this particular kind of beauty. They, themselves, in the ruthless mill they have gotten themselves into, should be glad of even a temporary release from the grind.

The relative time lengths the several fine arts can hold the attention, and at the one stretch, tempt here a diversion. It could be one of but a sentence or two. But how dangerous to embark! The opportunity makes, as the saying is, for "starting something." Fortunately, no one individual can speak as expert on all these. If he could, his summing would, I think, go something like this: The amateur lover of painting gives one long lingering look at a beautiful canvas and passes on. By long odds the shorter musical compositions are all not more than about of three-minute lengths. The drama is, of course, much longer. Some operas are longer still. A lecturer is urged not to attempt holding the attention more than an hour, if that. The radio programme gives usually fifteen minutes to single presentations and then seeks to prod the attention further, on successions of these, with goodness knows what crimes against musical taste and long suffering. The least fraction of a beautiful melody is dragged in as though by the hair and to prop this and that sometimes insufferable offering.

Can light color playing be given a content sufficiently repaying to hold the attention by itself alone? Even for a few moments at a time? With



the few moments gone, would an audience still linger?

There are certain affectings by light play that now need no proof. By this I mean light play artificially produced for creating feelings within the beholders. In other words—light play used as aesthetic means for fine art results.

To brighten the light, irrespective of what has gone before—what is to come after, is a proven tool in the hands of the light-play artist. With this he may heighten or induce liveliness in feeling. It has yielded large result as I have told. The converse is also true, that by playing on darkness he can invoke quiet, meditation, peace and a whole list of similar emotional leanings. Between these extremes, I hold, is a capacity for wide significances, wide affectings.

We can announce and not only predicate the ability to give a certain emotional satisfaction through light-color shade and tint handled for the sake of subtle intent by itself alone. That, according to the length of time these are put to such service, they can be made to hold an audience and its attention of and *for themselves alone*.

How chaste the colors of jade! How self-restrained the tints of moonstone! Imagination can be met in an actuality by an interior, caused by an artist to glow in all hues nearer the this, further away from the that. Even the quantity at hand may express an increase of such sentiment, a decrease of that. For the amount of light color the interior arrangements and the instrumental parts played through make visible, is, in itself alone, a modern day miracle. The tiny sapphire of so great value reflects but a comparatively few of

these rays. And yet this Nourathar artist can show you up such quantity of this beauty as not to have been dreamed of before.

He may use the color sparingly. He can play with exquisiteness and deliver with chary care his strong control. And it is there not to run away. The more practice through the Sarabet, the nearer the superlative will the Nourathar presentation be.

There remains the question: Can the artist through this medium make *his intent* palpable? Can he drive it into you? Can the one playing on the Sarabet add exhilaration to your feelings? Can he deliberately enliven you at a given moment? This has been proven over and over again to be so. And this, through the crudest of apparatus means. In all logic then there remains but the one determination. How *far* can further subtleties in the play, through the immense range showing it, register for the intended response? *And*, how long can such light-color play hold the attention?

What sort of story, unsupported by a parallel art pointing the way, can the drift of the continuity spell? It will not speak of things and people. It will in its way be less abstract even than music. It will transmit the Nourathar artist's conception for particular purposes and in particular times. The medium has enough with which to match the shadings of feeling. The values in color and shade and tint are enough to highlight the aesthetic intention—and this according to the letter, not metaphorically. It has its own all-embracing scope. Though the concrete tale of things and happenings is not to be expected,

the beauty will ornament and charm. It is enough.

If with music, poetry and the dance, why not alone? Music is feeling in essence. Why not essence of light without other guide?

We have seen that the critical sense may be applied to light-color play performance. Those who have a talent for sharpening the sword of their judgment will have the joy of still another opportunity for exercising the acumen. Certainly the artist could chase you out of the hall with crude, rough and incompetent performance. He must keep his message unconfused or it exists not. He can defeat every end. He can jar the finest feelings.

It is beyond question that light-color playing can quiet a harassed mind. It may stir into courage. It can lull into rest. The artist may, through it, assuage the bitterness of a moment. In these ways he can offer the mental escape. If color at its spectral source cannot do it, then nothing can.

The art is young. It is very young. It is still young *because it has been deliberately stunted in its development*. It is remarkable that those who would not think of entering an expert field not theirs should feel free to think themselves artists in this form of category without the needed knowledge and training. The result may be seen as a part of wanton wickedness, wantonly perpetrated.

Let me be still more explicit. Let me be so clear as not to be misunderstood. Let me make plain without disguised meaning or reservation. I will not be able, of course, to completely even suggest through words. If I could, the art would be literature and not light-color playing used as

a means of expression. I do mean that the player, or the manipulator of the light can through it induce a feeling, inspire an attitude of mind, cause definite leanings towards emotional states. That such stemming from the centre of his being will span the space and cause the beholder to feel springing within himself the intention carried and meant.

A given darkness of light announced in its purple character will convey a different quality of message within the beholder than the same darkness clothed in tincture of green ray or blue.

I think a brightness in the rose will spell and speak, it will initiate, produce, create, stimulate or cause to arise within the centre of the being through his eyes a different kind of pleasurable experience from the same brightness delivered in the yellow. And so on through numberless variety and condition which is fine art. Playing through these gives that freedom that enlarges the usefulness of all the other faculties.

It is said that the retina of the human eye is about three thousand times as sensitive as the fastest photographic film.

Darkness and brightness gradation is such, that sensings through these may even offset color blindness, through *the values* they convey.

One artist painter once asked another how many such gradations he could distinguish in the minute edge of the table board. He could, he said, note fourteen.

But much will depend on whether the Nourathar artist exerts the full depth and breadth and height his soul can reach, "when feeling out of sight for the ends of Being and ideal Grace."

## PART FOUR

### The Notation For Recording Light Results

*"The Substance of what we think  
Tho' born in Thought, must live in Ink"*

#### I

#### CHAPTER

### LIGHT-SCORING

#### The Mark On Paper

**B**UT the mark on paper—and all the world's learning and much of its beauty set down for future times to know about and see and use. The well is large. It bubbles and grows the fuller the more it is drunk from. It is the cruse of oil always full for the greasing of thought—for the quick not the dead.

Sufficing for all language, these marks are but twenty-six. For all number, ten. Yet these ten may measure light years in the tens of millions and more. Seven for ordered sound. Every set of such markings for matter new adds a multiplied power and freedom to man's wings.

I offer here a notation for the infinite variety held in the root of all color, the spectral ray. Not just itself alone but its lesser or greater amounts or quantas, and indirect transmissions of these. Such as are known as the darker, the brighter, the shade and tint. Not only these

but other qualifications are part of the tables.

Of the marks on paper above mentioned that have been in use over ages long, those for number and musical sounds are based on a reason that is absolute. The alphabet is, on the contrary, autocratic or rather arbitrary. It is arrived at only by common consent. A people on another planet or even here may have decided on making a form like "b" to stand for the sound "a." Nothing prevents. With number, "1" (one) is a single and the fact cannot be altered. In this way it is that the alphabet has been arrived at by the arbitrary made at pleasure, while number as of an absolute is free from relation. The musical scale, it seems, is based on what has been called the chord of nature, or so it is thought according to one expert. The fundamental to this natural pre-existing being middle "c" or "c" in any octave and its overtones. Should this

be invariably true then the marks for musical sounds are based on a probable absolute also. It is the thought that somehow there is a sound, a vibration centre irrespective of the various directions from which this comes.

It is fortunate, it is very, very fortunate that marks for the true primary spectral colors can be based on their absolute character. Such marks are not then a matter of relation but are a positive, an unquestionable. Their unchangeable nature has been set by Creation itself. The eye only sets its seal by recognition of them.

The true primary violet, blue, green, yellow, orange and red are constants that are unvarying. They form a regular progressive series known, as these are generally placed, as the spectral circle.

It could be argued that orange is but a between of the yellow and red. Also that violet is but a halfway house to red and blue. There is an argument against this. It is this: that the eye itself refuses to make another color out of blue mixed with yellow, for this but makes the green. The eye said there could be an orange and a violet in the spectrum. Since these are there they may be accepted as placed there as distinct entities and finally by the consent of the eye itself.

There is a simple way of proving the true spectral color. A filter made for letting through any one of them allows of the rays of no other resulting or being seen through said medium. Their unalloyed presence is a matter of proof. It is, indeed, a matter of more or less simple proof. It is, indeed, astonishingly simple, the results considered.

It is to be plainly understood that

there is distinction made here between a secondary transmission of the true spectral rays and their initial or root nature. Any light or color seen through an indirect transmission by *dyes* or *autumn leaf* are such as these dyes or mediums make or temper them. The true spectral beam is of the original fundamental. The namings for this true shut out indirect manifestations of themselves that are not true. Or so it should be treated, and the sooner the better. In other words, the name "red" is always to mean the spectral hue and so with the others. It is true that moon rainbows are sometimes seen through the indirect transmission of the sun's shine. This would be more of a burnish. It would be oftener seen were it not that the apparently silvered surface of the moon is really nothing, quite possibly, indeed quite certainly, only made of "snips and snails and puppy dogs' tails" exactly as little boys are. It must be quite a moon glow indeed, following a shower, that will overcome the loss of all the rays' dirtied and vitiated and lost in transit through the this and the that in the second and third-hand transmission. The untrue, as all untrue, fails in its reach for a goal.

I would here propose that the names: violet, blue, green, yellow, orange and red stand for *their spectral ray nature*; and not any of the many changed transmissions of themselves. It is a platform for fundamental color orderliness worth having. Certainly for the good of the art of which I am writing this is an essential. But then the art deals only in the spectral ray. It does not recognize vitiated or once or more removed transmissions of itself by dyes or pigment.

### *Marks for the Six Primary Colors*

Marks on paper for the six primary colors have long been in use. I see no reason for not borrowing them for notation purposes in conjunction with this art. However, they cannot be considered here in any careless inexactness. Nor in their lack of standing for a fundamental meaning. They must in this refer only to the primary *spectral* appearance of themselves. Or, indeed, such appearance perfectly matched. This art has no place, for example, for separate marks for brown or grey, as these are in use. For these are but composites or modifications or both of the colors and they should be so understood and so marked. This art cannot allow using these initial marks as standing for anything else but the root color's primal nature. These can be noted down through additional signs as combined and even in certain proportions, however. I see signs for brown, and a considering of red and pink as the same on a chart issued by the U. S. Patent Office which I have before me.

With this understanding the marks heretofore used in print, drafting and heraldry for color may well here extend or make an exchange in their worth! In this art a separate and different mark standing for any one of a number of mongrel composites of the spectral colors has no place. Unless such be denoted by a combination made of or by these basic markings placed together. Even "the smoldering purple of the eggplant" can in this way be denoted by "the paper's light." It is a noble color.

Creation itself has made definite and absolute six true primary colors only. Creation itself has developed

a human eye capable everywhere of recognizing their nature in their fundamental appearances. This is a great help to putting orderliness throughout the whole color map. It is well for the start to have been made through this labor.

As we have said, their primal visibility and recognition allow them easily to be segregated one from the other. The marks now, and in this, started into use must be confined to a purpose cultivated in a way as orderly as they themselves are.

It is to be understood that I am announcing the practices and use of a notation for indicating or recording on paper a sequence conceived as expression through light-color play. Such, of course, may be extended for use in the color affairs of everyday life. The notation is of many parts. The marks for the root colors are but the first step. As a first step they are basic. *They are the first essential.*

It is not easy to arrive at a light-color play composition or sequence fraught with meaning. A result arrived at is easy to lose, easy to forget. To fix it down as the pen has registered the literature of the ages is a valuable necessity. Luminous is the subject matter. It shines and is resplendent. The resultant beauty in that which man can accomplish through it is very great. It deserves being put down in recordable form on paper for the ages that follow to reproduce. So the conception can be made remanifest, when and as wanted, in its own sort of flesh and substance.

When a man untwists the sunbeams and turns them into a covenant between himself and his kind, the achievement is worth a living future beyond the life of the man

creating it. Such compositions could well deserve a lasting place in history. Through the instrument equally standard they can be re-executed as nice art by man for man to feel through. And this may be wherever such standard instrument is found—for Fiji islander, Bâli dancer, German philosopher, French artist or New York financier. The same result will be seen, played as the paper calls for. Such is the future of a notation for indicating light-play sequences made as a means of expression between man and man. If other planets are like this one, then on Mars and Venus for these, too. The same spectral rays reach them. These are part of their lives also. The standard means for such reproduction are, of course, an essential. I was asked once: "How would black be made in light-color play?" Black in light-color playing is the absence of all light. Silver could be the neutral reflecting background.

So far, we have mentioned but the first necessity. This is the marking, as absolute as the color itself, for the

true primary spectral colors. There is much else to follow. We will carry it through to the point where the poet can say: "Yet I wept for it! this *the paper's light*."

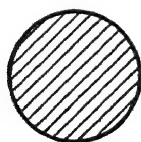
As to *SUN* and *MOON* and *SILVER* and *COLOR*, the following deserves a bit of life added to it.

"Because of the light of the moon,  
Silver is found on the moor;  
And because of the light of the sun,  
There is gold on the walls of the poor.

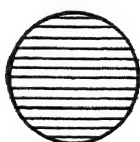
"Because of the light of stars,  
Planets are found in the stream;  
And because of the light of your eyes,  
There is love in the depths of my dream."

Play with light. As pleases your majesties, arrange as you will shafts of sun, and glimmers of moon, and strands of comets.

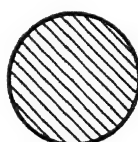
Unloose the tightly drawn lines of your thinking and let out all the headaches.



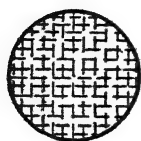
VIOLET



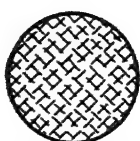
BLUE



GREEN



YELLOW



ORANGE



RED

DENOTATIONS IN PRINT LONG USED FOR COLOR COULD WELL BE  
CONSTRUED AS STANDING FOR THEIR SPECTRAL EQUIVALENTS

## II CHAPTER

# THE MARK FOR COLOR TRUE

THERE is a certain genius in simplicity. The marks on paper, heretofore used for the six colors, are simple in the extreme. They are so good for the purpose. They will be adhered to here. I will have to add to or use them in combination. The idea of employing *composite markings* for true color mixtures is new.

The markings for the six that are seen when a "bowl of sunbeams is poured over a spray of rain" are as follows: Short vertical lines "||||" for blue. Horizontal lines "≡" for red. Diagonal from right to left "///" for green. Diagonal from left to right "\\\\" for violet. Up and down interrupted cross hatching for yellow. The same diagonally for orange. They are admirable. They could not be better. These in the past, it is to be understood, have been used instead of the actual colors in print.

What is new about them in this connection is that they shall stand for the *true* primary colors—the colors of the spectral band. These beamed colors are unchangeable. They are launched in a character absolute by the forces of Creation itself. They are fixed. They are of a definite identity. They are easily segregated. Their trueness in the use of them is proven with comparative ease. Their general recognition as the true *firsts* as the base of all color is perhaps needed. It is a firm start for further departures. *It is shown*

*as an essential in the progress of mankind, in mankind's general affairs for the first time by the coming of this art.*

The "rock bottom" is needed for an operable, a lasting record on paper. Such may spread to all color uses, of course. It will not do to use the mark for *any* red, or *any* green, or *any* blue. It should or shall stand for the spectral source of trueness from which these stem. It will make for a called-for orderliness if it does. It will be a regulation that does not lump any or many kinds of color or different phases of that color under the one name but will restrict this to its primal, its original nature. I am aware of the argument that there is a merging of the colors between one and the next in the natural spectral circle. If true, this alters nothing. The rays are separable for the original first, there, as anywhere else.

We know of beginnings. The animal managed to get up on his hind legs. The spark of fire kindled a new world. A crude first symbol for a musical tone—and listen to the master orchestra. What was once done for words, number, tone *is now being done for color*. It is fitting that it is through fine art that the call was rung, the needed prod for the imperative want was given by this fine art. It is well and just to remember this.

It is extremely fortunate, it cannot be too often repeated, that the basically stable, the unalterable na-

ture of these true primaries allows of but the one marking. These have been made a standard by nature itself and the backing given them for use by man by their own development of the human eye. Useful in their absolute trueness here, their use as such may well be pushed into other fields.

#### *Notation for Defined Color Admixture*

As a next step see how well the above markings lend themselves to combination within themselves. Lines vertical with lines horizontal and we have a blue-red or red-blue " $|| \equiv .$ " Vertical with horizontal or green-blue or blue-green " $|||| //$ ." And so further. It is but a step again to make every single line stand for a *given proportion* in the mixture.

A differentiation has arisen as to which name of the two colors mixed comes first. A blue-red carries with it the sense that in the mixture the blue predominates. And that red-blue conveys a mixture in which the red predominates. In this also fine art demands no uncertainty. It calls for the exact tool. It is not enough to hazard a stronger of one than the other within the combination, but just *how much* is the one stronger than the other. However, since there is a given order in the spectral circle, it is logical to give the color standing first its priority in the markings combined. There is an order in precedence in the sequence: violet, blue, green, yellow, orange and red.

#### *The Secondary and Tertiary in Color*

This work has already described the innovation that entails mixed colors in defined and dependable ratios. It has mentioned a result

attained through mixing the colors in quantities of thirds as a first step at least. It has told of their availability in the world of trade. It has told of the practice of this art using (1) the true color; (2) two-thirds of the true color mixed with one-third of its neighbor in the spectral circle, and (3) one-third of the true primal color mixed with two-thirds of its neighbor in the spectral band or circle. We have called these the primary, the secondary, and the tertiary. They are definite and orderly landmarks within the route.

Let us repeat that the markings lend themselves to noting down the defined mathematical admixtures also. This further use, this extended use of them is entirely novel. It is here broached for the first time in this handbook of a subject, as having been initiated by it.

This starting may lead down to the finer still and finer. It is true that one may need the tinkle of a pink. But this is not all over the map of reds thinned. Which pink is to give the tinkle? You may wish to summon a particular feeling with it.

The two-word phrase "pink tinkles" is a logical bit of expression. Pink is of a lighter color weight to the eye as tinkle is a slight sound to the ear. The very pink you need may be gotten by one part of red mixed with two parts of white. It is well to know just how and where, and when.

One vertical line combined with two horizontal and we would logically have a symbol for one part of red to two parts of blue as follows: " $| = .$ " One diagonal line right to left with two vertical " $/ //$ " could well stand for two-thirds of blue to one-third of green. It is understood



that such admixtures are chemically measured. The formulae for arriving at such are standard also. This work called for them. They are in existence.

For being extremely meticulous, there is a differentiation to be made between mixing colors once removed or further from each other, and the mixing or combining contiguous ones in the color circle. Mixings of the one color with others removed in the scale from it could easily but result in the hue attained by the mixing of contiguous colors. The eye itself reneges in mixing a color with one, one removed from it. In such case it refuses to see a completely new color by such mixture. It comes back to the middle one. This also simplifies the matter. Mix blue with yellow, and green, the in-between, results. And so further. So the nature of color itself holds that, that simplifies the recording symbols as a whole.

Finer ratios would add a further number to the lines used to signify ratios. In fours, fives or more instead of threes. These would primarily refer to the clenching together of colors contiguous in the spectral circle.

### *Filtering of Spectral Color*

Let me here make plain the relation of this, so far mentioned, careful consideration of color recording to this work. It is for the purpose of nailing down such transparent dyes as will filter through the spectral or light rays *in their primary nature and this nature further intermixed*. Such rays are in this used for the fine art purpose of expression. They are so handled to create a running meaning or aesthetic speech. The sequence

arrived at, one worthy of record, must have a notation to perpetuate it. The notation requires a counterpart in fact. In this case the fact includes such dye formulae as will filter through the primary spectral colors and such intermixtures of themselves as may be made indispensable to the art as time goes by.

I append a chart that gives at least the trade number for the formulae arrived at and used for getting each separate color result and results combined as above mentioned.

It is a part of the times that big business sits like a bursting frog on top of all that it can be made to control. Although the invention belongs to the individual, although it is she who did the engineering to the end, she must be satisfied with the trade number rather than the actual formula. These are carefully held secret by the company in question. The formulae back of the trade numbers here given are lodged with the largest company dealing with dyes for filtering color at this time. They can be identified and at least their results obtained.

Since dog seems to manage to eat dog all the way through, there finally results a single large company sitting on top of the heap of would-be companies catering a certain commodity or element of economic wealth. When I mention that the numbers given in the appended list are the ones used by the largest and in a way only company purveying transparent dyes for light-color transmission, it will be known which one this is. These particular years will label the company whose files contain these particular trade numbers or identifying characters.

Of course times change and some other company may come about to replace a prior one. The trail is likely to remain. Big companies have not been especially anxious in the past to adhere to the meticulously careful. Quantity production is an enemy of a product produced in an exquisite fineness. That is no reason why a vision should not reach further than the easily available grasp—and make the ferment in the times to that end.

There is a further difficulty, in what otherwise might be but a simple buying and indeed for very little money, of such ray filtering sheets. The true colors have been matched to be conveyed in such ready-made and available sheets. There are several of these companies and EACH GO BY THEIR OWN NUMBERINGS for labelling of such sheets. I will give one set of numbers hoping, somehow or other, the right company will be fallen upon accidentally. There is at the moment nothing else to do, since the situations are multiplied.

The formula indications are as follows:

**Primary:**

Violet No. 34 ref. D Lt;  
Blue No. 48 ref. C 2;  
Green No. 53 ref. Naph 3;  
Yellow No. 12 ref. Minus Blue;  
Orange No. 19 ref. Mono Orange;  
Red No. 29 ref. F.

**Secondary:** (Two parts of the one with one part of the next)

Violet No. 36 ref. Meth. Viol.;  
Blue No. 45 ref. H;  
Green No. 61 ref. N;  
Orange No. 23 ref. E. Red;  
Red No. 38 ref. Xylene Red.

**Tertiary:** (One part of the one with two parts of the following)

Violet No. 50 R. L.  
Blue No. 65 ref. Minus Red  
Green No. 58 ref. B  
Orange No. 32 ref. Minus Green  
Red No. 32 ref. Minus Green 3.

It will be seen that two yellows are missing. I regret the loss of the formula identification for these. With those in hand it will be the easier to arrive at them.

The numbers under which the matching gelatine sheets are sold by one company are as follows:

**Primary:**

Violet No. 215;  
Blue No. 350;  
Green No. 498;  
Yellow No. 95;  
Orange No. 135;  
Red No. 175.

**Secondary:**

Red-Violet No. 215;  
Blue-Green No. 455;  
Green-Yellow No. 460;  
Yellow-Orange No. 135;  
Orange-Red No. 145

**Tertiary:**

Blue-Violet No. 295;  
Green-Blue No. 455;  
Yellow-Green No. 460;  
Red-Orange No. 165;  
Violet-Red No. 205.

Such numbers used by the companies, as a whole, stand for gelatine sheets that transmit shades and tints in colored light as well as full intensity color. In spite of the comparatively recent demand for these in a variety, it will be noticed how low are the numbers. It is a hit or miss purveying. Subjected to the defined scales for shade and tint provided by the instrument of play herein described, they are well-nigh haphazard and futile to a degree. But they do offer something as we have pointed out. Especially is this so because of the matching that distinguishes the picked-out needs.

The mere fact that as many of these different color sheets are now available is a proof in itself alone of the headway Nourathar has made in leavening the world's affairs. The state of the gelatine sheet trade, which I found *sometime after* I

launched the idea of the labor, was pitifully ragged and slight. Not having the arrangements to show the color even if produced, their use, if any, was chiefly to cut down a light not wanted as so disturbingly bright on the stage.

There was a dancer, very late in the last century, who gained a continental vogue through having noticed how pretty the draperies looked as she whirled about when subjected to a spotlight. Her biography mentions that she used scarfs already colored by dyes for the purpose. I can easily understand this. Her biography is, moreover, of a recent date. This date is preceded by this invention of Nourathar and must be read in that light.

Without putting colored light under a thoroughly comprehensive orderliness, a notation for recording the same is almost of no avail. It would be an attempt so restricted as to be done in vain. I, who have played the instrument with the secondary and tertiary mixtures in thirds and without, know that there is a world of difference between the two. The one takes account of the entire range of the light-color circle. The other nibbles haphazardly at it in, comparatively speaking, one or two places of it all. The latter offers no accountability. And if words were unaccountable how could one speak.

I knew a housewife once who had the habit of marketing for her table. She then would make out the day's menu. She would pin this up on the kitchen wall saying to the cook: "Jetzt, Marie, ich hab gekocht." (Now, Mary, I have cooked.)

The formulae and trade numbers I have given represent a great deal of thought and an immense amount

of labor. They are now there for a wise world to take advantage of them. "I have cooked."

Three color wheels allowing of six different filters each before their lamps would cover this primary color ground and the intermixtures gone into to the extent of the power of three light sources. The further intermixtures these may be made to bring forth by interplay of the resulting rays are a wide extension to the joy gained in their use.

#### *Identity of the Trade Number with the Spectral Color Produced*

If a filtering sheet impressed or processed with any of the formula numbers representing the transparent dye mentioned is purchased and placed in front of the light source, the result will be that spectral color the artist wants which the trade number stands for. This then, in turn, can be noted on paper by the notation given. The repetition of the inspiration in light-color play performance can then follow. It need not be lost to future ages.

There is then an identity between the trade number, the dye or chemical formula this represents, the spectral color produced, its use in a light-play sequence and the notation representing such sequence. On the chart is carefully marked the number, its resulting color, and the mark given which, when placed on paper, represents the color. It takes long to write. Made available, these take but moments to play.

The labor is fixed for all time to come. Unless, indeed, the big business frog bursts. In that case the records are likely to be passed on to other hands. It is best not to leave the knowledge unused too long. The

proceedings are simple in the extreme, once the means are in hand.

### *Primary, Secondary and Tertiary*

For the time being the art can call on the primaries, secondaries and tertiaries of the full intensity spectral color. For the time being this is sufficient for a large result. To do without so much at least, materially crimps the palette. From actual experience in playing through the Sarabet instrument, such orderliness gives an indispensable and an infinite much. Without this a hodgepodge otherwise results in duplications of the same hue, in a senseless unaccountability. One cannot, without it, count on the exact result. The above ratio representation of ratios in color is now readily available throughout its range. It gives the wide scope for dependable result. Practice has made this clear beyond the doubting. There remains but adding still finer ratios when and as these are wanted.

### *The Art Now in Practice*

The art is now in practice. It has been, though in extreme crudity, in practice for some time. It has peeped out shyly in its right intent under my hands and through my instrument. The notations with the orderly color transmission media have been used.

Its very crude use is still now very wide. Too bad that the author of instrument and fine art should have been chased from pillar to post, from bush to hoped-for ditch. Nevertheless, through the crudest of imitating means, a beginning has been made. Stage electricians and the entertain-

ment house orchestra conductors can easily further the art in ways it should be furthered. They are all now, in a manner of speaking, making use of the benefits created for them by this labor.

It is plain that for universal and time-enduring record there must be standard instruments of practice. These must be not only universal in character but complete in their soundness also. It is fortunate that in light color there is in the spectral *primaries* but the *one* definite and unchangeable; that for darkness and brightness there is but the *one* scale. Via this route the color maze has been properly unravelled and simplified.

I have been told by one electrical engineer, of those who stepped in where angels should have feared to tread, of one confirming dilemma, one convincing anecdote. Certain men, employees of well-known electric aggregations, took up the subject. They made a certain apparatus once shown in New York. They could not find out which color a certain physicist had delegated to *one of the notes of the piano*. This one had been inoculated with the idea that hearing and seeing were identical senses. They heard that one of the men who had worked with him was in South America. They went to all the expense of sending a man down there to see which color or shade or hue out of the myriads had been relegated to "G" flat or "A" double sharp or "B" goodness knows what. It is incredible, but so it was. No wonder the fizzle that resulted is likely to resound and redound again and again to their discomfiture. It should.

# III

## CHAPTER

# A BIT OF "FILM" HISTORY

WHAT is called "a specimen lighting plot" for a theatre play lies before me, as being in use in 1934. It is out of the book printed in that year: *Theatre and Stage*, Vol. II, London; Sir Isaac Pitman & Sons, Ltd. Edited by Harold Downs, p. 1138. This is thirty years after my conception of light-color playing used as a means of expression and eighteen years after my disclosure before the National Convention of Illuminating Engineers at the Bellevue-Stratford, Philadelphia, in the summer of 1916. This plotting was, undoubtedly, considered a very fine one to pose as example for even that year of 1934. My mind goes back to semitranslucent silk curtains that rolled up before a light source opening something the way window shades do now. This was early in the present century.

It is quite certain that nothing of the sort was used before a flame light, such as that of gas or candle. The electric arc light was also a flame light. Its brilliance was merciless to both eye and stage. It was generally placed in a position at a distance away in the auditorium balcony. Electricity was feared. By it a man sat to attend to the more or less constant attention it needed. It was well hooded in a metal housing. This cage front was far enough away to allow of something being interposed to soften the hardness of the great strength of the light and the sharp round circle it made.

The glare had to be cut down. This was accomplished through some sort of interposition as the one above mentioned. A slight tinge sufficed for the purpose. The tinge itself was not an objective.

Modified towards the blue it helped to simulate the coming on of the nighttime in the stage plays calling for this. A something reminiscent of yellow softened the hard, crude, bald deadness of the harsh white of the light. This, undoubtedly, also threw a softening hiding for the stage dirt. It gave a mildness to the sharply rounded edge of the "spot." This was so little, so negligible, it would seem that the mind darkness of the stage as to possibilities in light conceivings was complete. It is now all but opening its eyes to the new world waiting for it.

I do not know that there were gelatine ray filtering sheets in 1905 or even later. It is quite certain that no color perceptible to the sight was filtered forth. I had too much trouble myself, with every pains taken, to get any to show themselves. So many of the contributing factors were missing.

I know that around the years 1909 and 1910 I was obliged to purchase transparent color *in bulk* from the dyeing trade with which to stain developed photographing film and such scraps of gelatine as were available for my experimentations. I was attempting "the singing of an entirely new tune." The field was prac-

tically virgin of all requirements needed to the end.

This end was that of using the spectral color gamut *entire* as a means of abstract human expression.

A glance at the above-mentioned "plot" brings to mind the pieces of gelatine only available even in those years of 1909 and 1910. These were hauled out from some unsuspected corner of a shop dedicated to renting out spotlights for this evening or that, and then taking them back again. They were used together with semiopaque silk for the purposes above mentioned.

Ah! here in the plot of 1934 is my old friend "straw." And there is "amber." And behold "light" blue and dark. "Straw" mellowed without obliterating and "blue" "doused the glim."

Little progress in light-scoring denoted in a lighting-plot cue sheet of 1934. Excerpt:

CUE 1—

Floats	Check to <i>OUT</i>
Batten No. 1	Check to $\frac{1}{4}$
Batten No. 2	Check to $\frac{1}{4}$
Batten No. 3	Check Straw to $\frac{1}{2}$
Flood No. 1	Check to $\frac{1}{2}$ and move beam to strike upstage R. corner
Flood No. 2	Bring up to $\frac{1}{4}$
Spot No. 1	Check to <i>OUT</i>
Spot No. 3	Bring up to $\frac{3}{4}$
All during 5 minutes	

CUE 2—and et cetera

Even menu making knows more today than this "cue" sheet for the stage of 1934. "Add a Touch of Warm(!) Color to Your Holiday Desserts." "Plan your meals with an eye to color." Another newspaper column says, "All white meals or all *green* meals aren't very appetizing."

"Straw" before an arc spot could

scarcely announce a yellow even in dilution. Pink under like conditions could hardly give forth a tinkle.

I started out from the scratch. The road had to be cut out of practically no objects or conditions existing of avail for the conception in mind.

"Translucent silk" fronting light reminds me of a dancing teacher, who once held forth somewhere on the European continent. Printed about in a book as late as 1921, he is often thrown at me. His whole auditorium was walled "around, behind and above with material resembling balloon silk covered with cedar oil" (sic). Back of this, it is said, were 10,000 (ten thousand) electric bulbs. Dealing in large numbers is not entirely of the United States it seems. The result was a diffused light resembling daylight without visible sun. So the description goes.

I like the phrase: "pink tinkles," for pink is a making of red gentle to the eyes as tinkle is a sound less of weight to the ears. But which pink? The whole map of red thinned is not easily made available. It is not comprehended in the one word. From gelatine sheets of "straw" and "amber" to scales of least visible increments for all the range covered by color is a world different in sort, in kind as well as intent.

It is worth while to have been permitted to start from the very scratch, from the very rock-bottom fundamental. Look at the structure such broad base can rear. Like the finger of a dawn the labor has leavened the lump well-nigh across every landscape of effort. It should be looked at with reverence and gratitude. Not as thieves in the night, belittling her whose all they are taking.

I am reminded of the New York

man who, in a dingy spot of a cellar, rented spotlights for the stage. After light-color playing started the vogue, he blossomed out into a roomy shop on Fifth Avenue, New York. He complained to me that he had an order for twelve reflectors to go to Australia which he could not fill because the huge outlay of large manufactory was exhausted.

It was well to have to start in every direction from the very scratch. Had it occurred to me to be dependent on "straw" and "amber" and "pale blue" (?) and "dark blue," it would have been of a certainty hitching the horse to a post and telling it to run. And I do not know that even these were available in gelatine in 1905.

I have before me a page out of a trade pamphlet. This tells of the doings of one of the oldest and best known of the companies purveying theatre lighting control apparatus since 1892. I know my subject so well. I can see how the very grandeur of the pamphlet itself, its *color* plates denote the source of the innovations that brought it about. It has a quite frank series of dates and what came about at those dates.

In justice to the heads of these companies, it sometimes does happen that the head does not know what his underlings are doing.

I need not go over all the dates. A few will suffice.

It was not until the year 1920 that commutation of the powerhouse current was transferred from being part of such powerhouse current to a means for deliberately affecting the light potentials of the light itself.

In this year of 1920 was first added "a make and break switch." Prior to this the cast-iron and cement plate was itself the switch.

In 1926 the necessity for noiselessness in the unit was first taken account of. In 1927 we meet our friendly word "mobile." It was not until this year that these units provided "mobile floodlighting." Also in this year was provided a hydraulic ram for the light used entire. See my patent reissue No. 16,825. In 1920 the individual gradations found in fifteen hundred watts of illumination were given attention. *One of their engineers had been turned to by myself with my figures to make the unit for me.*

The contact lever arms were lengthened in the effort to extend the limited effect of muscular motion on a shaft of small diameter.

And now we see it announced that "the proper use of light has come to be one of the most important elements of the producer's art." The control of electric *light*, not the safeguarding against powerhouse irregularities, had come about.

A page out of a trade pamphlet. The datings are historically interesting to the subject and confirm the author's claims. See lighting plot of 1934.

- 1892—First plate type dimmer for carbon lamps
- 1897—First skate shoe contact
- 1910—First 110-step circular dimmers for Mazda lamps
- 1911—First 17-inch diameter 3000-watt 110-step continuous duty dimmer.
- 1920—First dimmer plate with make-and-break switch
- 1920—First 1000-watt to 2000-watt dimmer
- 1920—First installation reactor dimmers
- 1923—First slot closing interlocking handle for dead front switchboard
- 1924—First sectional unit interlocking dimmer bank
- 1926—First dimmer plate to be equipped with silent spring stop
- 1927—First installation of reactor dimmers for mobile floodlighting
- 1927—First hydraulic ram for grand master, slow motion control
- 1929—First adjustable cam drive for cycle dimmers

The "cue" sheet or "plot" to which we are referring followed. In itself it is a "straw" echo from the "Notation for Indicating Light Effects." There should have been a greater advance by that year. The light was considered. It was noted down for the replaying. This was done, however, in a roundabout way through "cues" and "cue warnings" sounded to the electrician.

Incandescent bulbs are the spotlight sources instead of *arcing*. The slow motion switch action was turned to play account. Certain "minutes" are allotted for this and that for the reason of this and that. The electrician moves a lever from a "check" stop to some part of the inch-rod diameter around which this swings.

The "plot" could scarcely carry to a notation, such as the alphabet is, and number is, and the music score is. Look at the color around you.

This is not "light as an actor," "light as a performer" such as now is creating enthusiasm in the fertile producer's mind. It is not that which "can make a subtle elixir of intellection within which the drama could be helped to manifest itself in its *inmost* reality." It is not "light play akin to an incantation." Such could not "through light alone create moments of the most precious."

The stage needs the console control centre and its light sources of standardized power and placing. It may well look into the Sarabet and its features. Producers are still floundering hopelessly trying to do with antiquated pieces of apparatus tinkered up to accomplish a purpose for which they were never intended. And this in the year of our era of 1945 and that of the Chinese of 4000 or more.

"She is still leading them," to quote again my lawyer to the Judge.

Feb. 6, 1934.

M. H. GREENEWALT

1,945,635

Fig 14

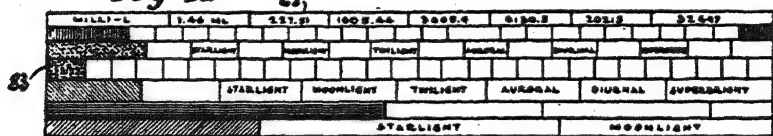


Fig 15



A SAMPLE NOTATION OF THE LIGHT INTENSITY GRADATION NUMBER AND COLOR COMBINED. SUCH WOULD GIVE THE COLOR SHADE. NUMBER GRADATION IN WHITE ADDED TO ABOVE GIVES THE TINT. FIG. 16 SHOWS SUCH NOMENCLATURE AS SAMPLE LIGHT-SCORING. NOTE ABOVE THE PROPORTIONING OF THE DIFFERENT COLOR RAYS IN ARTIFICIAL LIGHT



## IV

CHAPTER

# COLOR SHADE

WE are now about to take up the subject of a notation-labelling for color shade. It is largely through such shade of color and its cousin tint that the variety in hues is as great as it is. The very uses to which the word "hue" is put stresses an existing disorderliness. It may stand for a compound of full intensity color or it may mean a shade or tint. I take it there is no distinction made between the two in a certain dictionary which, I am told, exists. This dictionary lists names that have, some time or other, been given to such color discriminations. It lists several, or is it seven?, thousand of them. Some of these names are extremely picturesque, as "baby's breath" and "London smoke." But alas! such naming is as "breath" and "smoke"—lost as soon as created. And that must be the case for all of them.

Would a labelling by *number*, based on an absolute; one that is free from relation, one that is an unconditional, take away anything from the charm shown by the hue itself? A labelling through classifying quantities that would not be lost the moment made? "A rose by any other name would smell as sweet." Calling you "Mary" or "Charles" takes nothing away from the allures that are you. Indeed, pet names between lovers may seem stranger than identification by "one," "two," "three," "four," such as color forces us to use.

Indeed, the variety in color and its hues is so unbelievably great that

for more than one reason names cannot avail. To give shade a distinguishing *number* then must not be allowed to take away its poetry, its halo, its aroma. Such number must then be thought of as just an adjunct to the particular point in the diversity. That it is an identification of the shade degree. Such number becomes then the name of the color degree. It stands then for a recognition of the color shade identity for which the particular number stands. Only by number can the grade of a shade be fixed. These are too numerous, too various for any other form of designation. There is nothing to be said against combining a charming and fanciful name with the number that only can give it historic substance and record. The daily news sheet mentions a new scale for music. *Numbers* from zero to ninety-five are used instead of note symbols and names.

### *Shade Labelled by Number*

The number given a particular shade must, of course, hark back to a color shade measuring instrument. In conjunction with such shade measuring instrument the label given by a number can fix its shade so long as the human eye is as it is and such instrument in existence.

A least gradation of darker, brighter is such a one to us only as its least difference from the shade degree next to it. That is as such difference registers as least to the eye.

Careful description has here been made of a scale that can deliver least increments of lesser or greater visibility to the human eye. This was devised in accord with the exact lambert or millilambert illumination that would make or create these progressive shades.

It was discovered that shade of color is a matter of the greater or lesser quantity of the rays produced of such a color. The scale, through which these shades can be made, was primarily created as a part of the instrument for light-color play. It logically followed, indirectly, *that it also is made a means of measuring all color shade regardless of the purpose.*

It marks a fixed basis for giving each shade grade or degree a defined place of its own. It classifies it and designates it with a mark or number that identifies it, in a way defined beyond peradventure. So it takes its stable place in its relation to the varying shade degrees in the scale of which it is a part. The instrument for arriving at results so momentous is an object fine. It is no dishcloth. Perhaps it is not a "manufacturing proposition," a hand-over-the-fist quick production spewing. It is that much more worthy.

It is well to repeat that only by starting with the spectral ray, the root of all color, could such problem be solved. That the color ray is itself an absolute, an unchangeable helped.

What we have been saying is that the scale means on the Sarabet for playing light and light-color shade, as a means of expression, creates also a definite measure for color shade, and, through added shades in white, color tint.

### *The Scale Path*

What concerns us here for the purpose of label is the scale path. It is the scale path segments with the other factors we have described in earlier chapters that condition the shade. I have found that there are as many as two hundred and sixty-seven (267) gradations of visibility in one fifteen-hundred-watt (1500) lamp. There are, therefore, two hundred and sixty-seven (267) segments making up this scale path alone. It is long. Giving each segment the least width possible, one of .111, it ends by being about a yard long. *Each segment played on represents a shade.* It is but necessary to cite: gradation 1, 2, 3, etc., to serve as a mark of recognition of a given shade produced as the complementing means are played on.

For mercantile use the number of 267 offers no difficulty in application through its high quantity. In playing on the scale the number is too great for the eye to take quick account of. For this latter purpose the scale could well be divided into sections.

Any number up to the 267 or the section equivalents, placed on paper for the particular purpose, would stand for the shade of color so designated. So distance would be no handicap in the ordering by mail. Through this definite instrument of measure the shade wanted could be gotten from Paris or Berlin or nearby store without sample for matching. The arrangements needed for carrying such color measure out are more than one. They have been described as briefly as the subject allows in this volume.

## *No Octave to Color*

Incidentally to the above, there is no octave to color. Color has no harmonics. Color is itself an overtone of overtones. Its pristine strength is such that no two colors can fit together as identical. There is no perfect concord between the quanta of one and that of another. All this which can be said of sound *cannot be said of light and its color.*

It so happens that in playing on the scale for the purpose of creating shade there are no natural broad divisions, each made up of the many small segments to guide the eye. The scale path being long and the increment segments many, further help is needed for positions particularly assigned as a help to getting at just the point wanted on the scale path on the moment's need. There is no time to count out so many playing segments before making the wanted play.

It is, of course, not necessary for a player on the instrument to know the underlying mathematics. These have been done for him. He but plays on the result. Again the originator has "cooked"; the user need but eat.

### *Patented*

I own the patent claims on the scale of least visible gradations. It is No. 1,357,773. I venture to suggest that this patent be looked at. I will refer to it again.

### *Scale Divisions*

For convenience to the eye in creating light-color play expression, the scale path could be divided into seven divisions. This would make thirty-nine scale segments to the division.

These divisions could be fancifully known as zones or arcs. Lines or other designation may well demark

where each arc or zone begins or ends, made on the scale path it self.

We are here occupied in describing a notation that may be used for indicating light effects made as a means of expression. For this purpose simple symbols easily come to mind that may stand for these spans.

### *Names for Zones of Light Brightness*

The throes are pleasant of naming such divisions. My patent on "A Notation for Indicating Light Effects No. 1,385,944 gives a set for only four divisions of the scale path as a whole. These in practice proved not enough. The more schooled the eye, the more discriminating will it become as to using the finest of hue gradation for its expressing productions. These will also get finer in relation within the specified rhythmic timings. The names chosen for the four divisions at the time of this patent being applied for are: Twilight arc, Auroral arc, Diurnal arc, and Dazzle arc.

In this patent I also used the terms that seemed to me new. To wit "brightling" and "darkling." In the sense of causing to become brighter, causing to become darker they are, I think, still new. There is no "brightling" at all in my dictionary.

Seven divisions require further names. Let us say: "Dis" or Stygian for the absolute of blackness to Starlight or "Steorra" (Latin for astral), Lunarc to "Crepuscular," "Sunset to "Auroral" to "Sunrise" to "Diurnal" to "Zenith." Of course, the actual brightnesses are not denoted in any sense by these names. They are but used fancifully here. They may distinguish eye-easing zones to the scale length. The names are but suggestive. Their connections would make them easier learned. They had

better be elided and a symbol given for each. See Chart.

This is a simple matter with the actual scale path in front of one. Any starting found convenient will be of great value. The divisions may be marked on the outside cover that frames the instrumental scale itself.

The scale up to 267 gradations furnishes but a part of the brightness. The further accrescence in still more brilliant illumination is by addition of other scales and scale increases. The degrees are then of greater or more wholesale light addition. Decrease in the light is equally recordable by the converse in the practice.

On paper the notation for recording a light play would call for the color mark, the number of the contact block in that zone and the zone symbol. The third gradation of red in the auroral zone would be made as follows: See symbols. The number and the color may be combined as shown in my patent No. 1,945, 635, Fig. 15.

To arrive at the shade red denoted by the sample of compound symbol given, the light source back of the primary red filter would be energized and the scale shoe or contact member moved to the third segment of the scale. This is but a sample but it denotes the hundreds of shades that can be denoted through notation and likewise arrived at in the flesh, as it were. It is a good start in the right direction. It is needed.

In this manner the seemingly impossible has a road made for it towards the possible. A notation for a light-color play sequence is so brought into existence. It can per-

petuate a conception either extremely crude or fine as the art may demand. It has unlimited further uses as has been suggested.

A sample notation with use of the number and color combined is also found in this patent, Fig. 16.

### *The Application*

The application of these demarcations in actual practice is not so difficult as may seem at first sight. Fine as the eye is, *it is slow*. It also does not have to take account of every gradation passed over by the playing member in sliding across the scale path. Only the pausing point counts, and the beats taken to reach there. It is worth noting again that the playing member slides. It does not in any sense percuss.

Glance at the reproduction of a photograph of the scale path and the one of the scale path with its protecting cover superimposed, and you will see how easy to demark the scale divisions with their symbols on the cover. The shoe moved according to these will return the results aimed for through the wiring, the lamp, its filter and the rest of the train of cause for effect. All the above factors are already provided for the Nourathar artist. He needs but to play on and through them.

The large fact that the apparatus has been created, the instrument of play brought into being, its handling is one of a joy intense taken in the expression of one's self, through medium so exquisite and repaying. And the art result can be by the same exact means and measures perpetuated by record for all time to come. And this is largely thanks to the immutable constant nature of the light-color ray as the starting point.

The slider shoe does not percuss. The accretion is smooth to the vision. And this, whether a greater number of shades is traversed along the scale path or whether separate moments are spent on every point. The detailed time for the accretion of shade added to shade can also be taken account of as the way is traversed towards the moment's end. There are no limits placed on the manner of play.

In music the notes furnish the message; to which the loud, the soft are accessory. These latter, the louder, the softer, are of extremely limited scope in sound, comparatively speaking, so far as the art of music goes. These are so limited that the individual points are not stressed by labelling. On the other hand, the notes are many and are individually named. A "p" for piano, "f" for forte are a sufficient denoting. The symbols for the sounds are much more numerous.

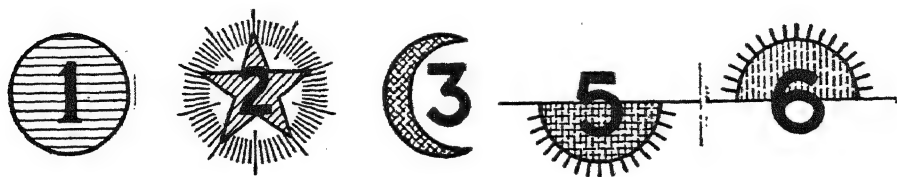
In contradistinction colors are few, except in their intermixtures; while the shades of darker, brighter are many. In light-color play it is the shades, contrary to the dynamics of sound, that are labelled. It is they that constitute the body of the play. So, it will be seen the means of color play is the reverse in this matter of dynamics to that of

sound play. They are, indeed, two entirely different matters. They are in no way comparable.

The notation for these light gradations, together with their color symboling, makes a record for perpetuation. And this in any land, any clime, wherever the instrument of play is available.

The labor represented by the several matters that constitute the notation of which this chapter speaks is large. It is founded on exactness of research and a trueness of vision. They are subject of my U. S. Patent No. 1,385,944, "Notation for Indicating Light Effects," and my other patents. I hope they will be applied further. I hope they will be applied in more than one direction of the world's affairs. What has been done points the way.

The patents prove their original character. It is not easy for a patent application to survive every record that can by any possibility be brought against it as this one has. The hugeness of the work calls for an easy intelligent application. It is a crime, for any reason whatsoever, to neglect a lead made looking to the furthering of human progress. Neither spleen nor money should be allowed to interfere. For it is a matter of "keeping thy flowers where they shall not pine."

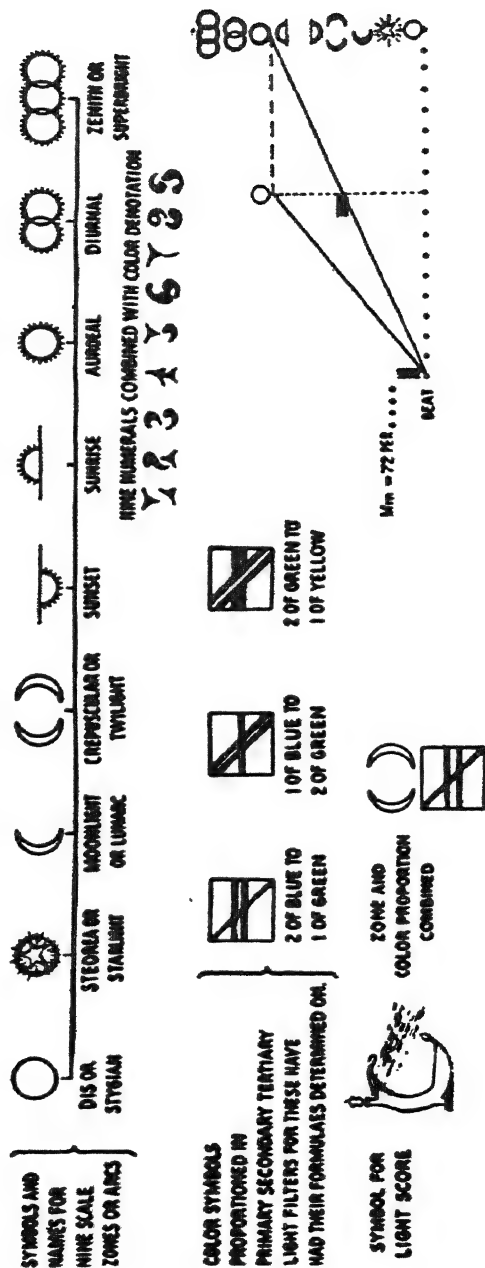


THE RANGE, THE DEGREE, THE COLOR IN THE ONE FIGURE

**THE SCALE OF COMMUTATOR SEGMENTS CONTROLLING 267 GRADATIONS OF DARKNESS OR BRIGHTNESS (ROUGHLY 270) YIELDS NINE (9) DIVISIONS OF 30 GRADATION SEGMENTS. SHOULD EVERY OTHER SEGMENT BE DROPPED THERE WOULD BE NINE (9) DIVISIONS OF 15 SEGMENTS EACH**

**I HAVE CALLED THESE DIVISIONS ZONES OR ARCS.**

**SYMBOLS OR NAMES FOR THESE ZONES ARE AS FOLLOWS:**



THE ABOVE SHEET IS SELF-EXPLANATORY. PLEASE NOTE THE DEFINITIONS OF THE MARKINGS. A SAMPLE LIGHT-SCORING IS SHOWN AT THE LOWER RIGHT CORNER. THE SCALE ZONES OR ARCS MAY BE MARKED ON THE OUTSIDE COVER OF THE INSTRUMENTAL PARTS. BELOW, OTHER SINGLE SYMBOLS EACH GIVING THE COLOR, THE DEGREE, THE ZONE

## THE MARK OF TIME

AS by the second hand of the clock that sits on your mantelpiece. As by the swing of pendulum of the one that stands in the corner. As by the temperamental vagaries of the tick of the watch that around sixty beats per minute does its work cozily snuggled in your vest pocket. As like these is the flow of your life measured away. And this is so by a central motion part of the very mechanism of the human body right back of this very vest pocket.

These suggested divisions of time in us do not necessarily carry as truth a progression forwards in space. They are only a measure in change. The idea of forwardness going is not necessarily entangled within them. There is not a from here to there in location about their urgencies. The sense of sending on ahead, or on the way to a designated place is a fallacy which, I think, is due largely to the brain's thud *up* against the skull just so often.

Indeed, there may be a three, four or "n" dimensional motion tending to this one dimensional one. However this may be, it is in the time rate of around sixty beats per minute that the accents of life are marked away.

"Accents" is not exactly the right word. One could the better say "surgings" or "resurgings" or "renewals" of life. And yet there is a defined demarking to these. There

is the *lúb dúb, lúb dúb, lúb dúb*. Time itself would be formless indeed, as time seems to us, but for this something that metes out life's stresses—and in identical beat along the way. This something is a measure at best soundless. *It is the pulse within us*. No accident made its average chime with the second rate of watch and clock. That individual (was it in Egypt?), who first took the opportunity of allotting what the small unit of time should be that could underly the span taken by each second, did he not unconsciously follow the suggestion of the "up" beat of his brain against his skull? Sixty beats per minute is a bit slow for the average. Is it not said that in warm countries the regular influx of new life blood around and within us is not so fast? Is it not more leisurely than in colder climes? The average of this pulse beat takes in many considerations: of day, and health, and country and beast and bird and fish. The leeway found in all these is slight, comparatively speaking.

Note the performance of the heart of man and woman. It pumps 4,329 gallons a day, in 104,000 beats. This is at the rate of ten cubic inches of blood per each moment, and around an average of seventy-two beats per minute. Thus often it lifts the entire brain against its skull.

And with this motion goes, of

course, all the experiences held within this self-same mind. They are all the experiences from the time this identical individual organ of consciousness, evolutionary fashion, was functioning in an embryo animal, certainly in the insect family till now.

Note carefully its persistence of motion, its record. Is it any wonder we fall willy-nilly into the recurrence it sets? *And we do.* Is it any wonder it has and still does pace our every rhythmic activity? These were born under and through it.

Were it not for the use once upon a time made of a traffic light (sic) as part of a symphonic musical performance, I could quicker cover the notation for the timing of a light score. Such a newness of departure or novelty as quick repetition of a slight light flash cannot be, however, altogether disregarded. It might some time be enlarged upon. It might be used as legitimate decoration of light play. However, this may be, a traffic light with its standard have been used in concert. It was used as an instrument played as one of the usual battery of musical implements that usually comprise a symphony orchestra complement.

This twinkling was tapped out as the composer had denoted it should. I heard and saw one of these performances. I presume the standard itself, that held aloft the light to be blinked, was needed. It made plain the modern picturing by some symphonic music of everyday matters in the busy life of affairs. In this way the standard and its light were good art. But it did intrude the *quick* flash as against the regular slower one. One cannot shut out the quarter beat, or half or less, in light-color playing. The slowness of the eye to

see will set a limit not needed by the ear.

I do not shut out the emitting quickly and tremulously gleams of light as incidental to the broad serenity of a light-play composition. It need or need not take its minor position in the whole, as the traffic light did within the symphonic opus mentioned. To cause a light to gleam fitfully, sparkle, wink, blink, glimmer, scintillate, or shimmer can well be imagined as adding a decorative note. Such like insertions in the continuity could well relieve the heavier intentions of the light moment. And these might well on occasion be a part of the conception's logic. They could well be taken account of in the notation for registering the timing of their performance.

But such would require denotations of time in fractions of the second's leeway. They would require a notation for fractions of the main divisionings of the timing. Such fractions of the main, the only broad unit of the time measure would be out of the ordinary. You may come along and play in whatever you choose so this spoil not the light conception's particular intent, and its well defined progress within that timing that only can hold the attention.

Such accidentals would require a noting of the time in less than the whole beats. They might ask for the half and the quarter or less. This is likely to be so seldom that it will not be taken account of here. The one main unit of beat is the one that is basic to the play. This is that one which standing around the sixty beats per minute only can hold the attention. It is an integral part of the development of man himself.



From this he cannot readily disassociate himself.

### *The Notation for the Beat of Light Play*

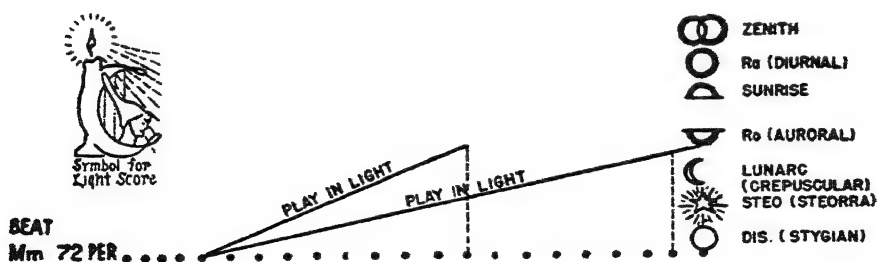
A simple dot placed at distances along the sheet is enough to denote the order for the elapsing time. This is the root. It is sufficient as guide of the timing back of the light expression. It but follows the tendency of the rhythmic time rate that is innate to all. It may be to some degree, slightly faster, slightly slower. The conductor's baton or metronome may police the finer time shadings, which can be felt yet scarcely measured. It is because this beat sense is so inescapably present that just a dot along a sheet of paper can do all that is necessary to represent it.

The time form in light-color play is of a nature broad. A waxing brightness may occupy many beats to arrive at its wanted point. Or it may use these quicker. The beat and its dot representation govern in both cases. The eye is held by them

nonetheless. The effect may take account of so many beats, or the effect may call for less. These recurrences that only can hold the attention are back of it all. In both cases the quantity in the light increase or decrease may be the same. The motion of the scale shoe moved by your arm only will be slower or faster according as to how you change its place or positionings.

Concretely, with your hand on the scale shoe you may move it up the scale to the fortieth degree of brightness in ten beats of time or you may take twice the time to arrive at the same scale point or twenty beats. *The brightness attained is the same but the time taken was different.*

We have suggested certain names for divisions of the scale path as a whole. The gross in increase or decrease in light brightness is what they represent. With thirty-nine gradations of light brightness any hand could move the forty gradations mentioned or from "Dis," or the total of blackness to "Steo" or rather



THE LIGHT PLAY LINE MAY TAKE A BACK-AND-FORTH OR UNDULATING COURSE

let us say Ro in ten beats. Or it could take twenty beats to move the scale shoe the same distance, for the same brightness increase. The time taken would be governed by the burden of the expression designated.

In the above light-score diagram "Mm." is the usual symbol for metronome mark. The dots stand for the regular recurring beat. "Dot" equals "72" means that each dot represents one seventy-second of a minute. With the metronome pendulum, let us say, ticking seventy-two times per minute each dot would mean one tick. It would be the rate of tick of a watch gone a little haywire on the time-gaining side.

The abbreviations to the right of the diagram stand for the zone or scale-path divisions. Suggested symbols, here placed before them, are brief alternatives to the names. The inclined lines show the brightening light. In the lower, twenty beats are taken for the scale shoe to move to the starlight arc. In the upper only ten beats are required (or half the time) to get the same brightness.

The diagram represents what the light-play artist would see on the sheet before him. It would tell him what to move, what light to energize. The sheet is the how and the when of the play. The result is what the eyes of the audience see. This is but a slight, a fragment of an example.

Even this fragment of a sample may be made concrete by a visualization of the result in practice.

Let us say a pair of Adagio dancers make their way to the stage in total darkness. The light begins to awake. When the scale shoe reaches to zone "Steo" the shapes are just beginning to be perceptible. And so on accord-

ing to the choreography, the music. And so also is the light and color feeling made dependably suitable to both.

Take another case. It may be a ballroom floor. All light is put out, and mayhap a clandestine hand pressure, caress, or gentle affectionate movement. The music starts. It is dusky, dreamy. The light leads towards awakened brightness. Countless the circumstances that may be thought of: with hymns, pantomime or for light's sake alone. The notation on the sheet, of which this is but one breath of suggestion, guides and tells the way. It may be used by anyone handling the illumination. Practice will quickly make plain that which a sample diagram can but make a start at hinting or intimating.

Even the simplest of such notation will be of better parts than the "cue" sheet first resorted to and for which it gave the idea. These were *written* recommendations for the stage electricians, through phrasings in words. They were hung on the metamorphosed switchboard.

However, should such early custom not break out of its ruts employed with the crudest of apparatus, "zones" may be, nevertheless, advantageously marked off and more briefly denoted. Symbols have a way of getting simplified as the years of use go by.

The beat marks in dots set along the sheet way can even now help the stage electrician. They are of permanent advantage due to the fundamental and the basic that suggest them for all alike.

It is a pity that conception, instrument and specification in patents have been so travestied for quick and cheap gain. Crude apparatus is

an insult to fine art. Color is capable of an unbelievable exquisiteness of subtleties. The Sarabet is fitted to carry these out.

Any light scoring that is conceived in company with and for a sheet of music will find the bar lines of this latter as serving a common guide. Naturally. The groupings of bars in phrases and sections will also have their say as to the spans or phrasings in light nuance. The timing here also may be in common. The verse of poetry has a time guide also. It is vested in its rhythmic feet, and lines and meter. In every case, everyone has the required beat sense bred within one. This breeding within one is, indeed, what suggests this time beat, no matter where found. It is so for all the various arts above mentioned. The denotation on paper makes but its mark representation. A regularly recurring pulsation caused by the rhythmical movement of music—a motion of the hand or baton—a stepping in the dance is marked for record in this way by pen or pencil. And for light-color play also. It is in this way, yes and no gainsaying, that a stable light score as to its timing is arrived at.

There is a variation, a leeway, in time of this rhythmic beat, as there is to pulse. It may run slightly slower. It may proceed slightly faster. The scope is not great. From a little less than sixty beats per minute to a little over ninety is, for all practical purposes, likely to cover them all. The metronome mark at the head of the light score takes care of just such modifying leeway. The fact that very little music gives any metronome mark at all shows how slight the range change is. It can

be felt. It can be measured. Indeed it is only for the finest of splitting the time hairs.

There is the instinct within one. It also has its slight whims. It is a fixity of habit also not too fixed. I can conceive of an Adagio dance requiring its own particular leeway—a dervish fastness also. The Latin rhythmic prose cannot be lost so long as this inner instinct is there to guide the scanning.

Even for minor occasions the notation on paper is a great help to memory. Wherever Nourathar, the art, has but appeared through showing of but a whisker or claw of the whole, such notation may be used in part if not in whole.

In a serious attempt at light-play composition, the notation on paper is indispensable. Such effort is helped thereby. The perpetual record is then its right.

Flexibility in the apparatus has been provided to meet every timing result. Such are a part of the Sarabet instrument. The control and reach of the arm from end to end of the scale path allow spanning of the arcs or zones slowly or fast as desired. Each degree in light nuance need not be met by a beat. Any of these are capable of being made to arrive to a nicety—on any particular second or pulse of time. The lengths of the scale paths offer no obstruction to even so exigent a timing.

The notation allows a visualization of the inspiration that brought it forth. The form is through it made compactly apparent and notation visible. So set down it may make a bid for *future* as well as *present* glory.

## BRIGHTNESS FLUX

THE brightness line of a light score may show undulation. It may billow, surge and swell. It may have both retrogressions as well as progressions. These may be a part of any final increase in force brought about by light intensity. There is anticlimax and forward moving. Two or more such lines may be used in denoting a single passage of the phrasing since there is more than one scale that may be simultaneously operable. What is caused to transpire through each scale would have its own marking. There would then be a separate denoting line for each scale and the playing results made through it.

The woof of the expression through Nourathar is made by gradual increase or decrease in darkness and brightness. These carry the color, the hue, the tint, the shade. The degrees in these are propagated from point to point. The result is of the nature of flow. The play is not arrived at through percussion or shock of collision. It is of a fluxion. It is smooth or the eye would not brook it.

There is incrementation in degree added to degree. There is decrementation in degree of visibility subtracted from degree. The eye, however, is slow in seeing. Since it takes about a third of a second to establish an effect on it, the line must show leisureliness in its progress, or regress for every grade to count on

it. The dots each represent around the second of time by the clock. To see the full result of the mounting light quantity, movement along the scale path should have consideration at its every point used if leisureliness allow. The undulations of the denoting line are something as the respiration curve or curves. It is also as these envelop the heart beats. It is known that four, six, eight heart beats can back the one respiration. Each of these beats, nevertheless, keeps its significant weight. It has its own role within each fragment of well-determined motion and repose, though not the complete sense of a section.

Due to the nature inherent to the spectral, these lines will denote a real mobility. It is an agility in *every direction*. It is not only an ease or freedom of motion. It is such free movability as is universal. It may be motion deployed simultaneously in the three dimensions. It could be mobile in four, five or other dimensions. "Goodness" only knows. It is so I understood the word "mobile." Rubber has something of this real mobility not sufficiently described by such terms as ease or freedom of motion. This sort of mobility gives an added quality to experience new.

The detail points of the light nuances need not meet every stress, in the state of timing. The presence of each one, though more or less

unconsciously felt, is nonetheless present.

Pulsations may go by without change in the line or line curve. Everything depends on the burden of the expression. The mark of the progression, the dots and the other light-score expedients carry the proceeding light-color ideas. Though it is but a playing on the dark and light, each of these may turn victorious through the meaning values they can convey, or can be made to convey. The expression, like a world that has rolled into darkness, rolls out of it again in the dawning of the idea. The brightest beginnings can end in darkness and vice versa.

Not only can the line that marks down the light degrees represent a thickening or thinning in the color quantity. It may be made to denote the increase and decrease in the amount of space covered or featured also. This is real mobility. Denotations for the lamp positions may suggest or cover this featuring of extension within all the dimensions of space.

However, this may be shown, its use carries a big thought. It is this: that the sizes or spheres of *domain* of this form of expression through light are also subject to the throbbings of brain—to the pulse of man—to the one dimensional nature with which we invest our sense of time. So the wide range of the seeing field of vision is here also logically and interactively given consideration as to timing with the sap of its very life thrown every so often to the rejuvenation of the body of which it is a part.

Is there anything that needs not occasionally a rest? Must not everything be reminded of the ineffable solace held in repose, in quiet? The light score makes no exception. A ceasing in the continuity, especially that made through darkness, has a part in the light score, as it is a part of other recorded forms of art. "To hear the silence sink, a moment at the voice." Such caesura may have its distinguishing mark also. A small curve would do, standing for the rest or pause, or just a cessation in the denoting line will carry the point. Even the celestial spheres need the night—that marks the end of a movement and the silence attendant on rebeginnings. Why not this play also?

Other marks as part of the light score will be found to be needed. The score lines could have cachet added in the form of a distinguishing crest as the clef marks the stave. A sort of light-way gate post. Practice and need will bring out additions.

The chief factors have so far been taken care of. These are: (1) The degrees of the light progressions together with the underlying beat. (2) The kind and character of the course of action, its condition of movement, the rate of flow, the quickness or slowness of the fluidity, its back and forth, climax and anticlimax. (3) The pause. (4) The space. These are essentials. In this marking down of just the fluxing the careful considerations for the finished conception will not be lost. Noted down on paper they may be followed to enchant and delight over and over again. And this wherever there are eyes to see, hands to do, and instrument to play.

## VII

CHAPTER

# COLOR FOR FLUX . . .

## MOBILE COLOR

THE filter in front of the lamp to be played on has been so composed or so provided as to show forth a given color ray. Such ray, by itself alone, in its absolute nature is thus fixed and unchangeable. It is for getting its shades that the scale path has been constructed. The scale arrangements are such as to increase or decrease the brightness potential of the light source back of the filter. As the possibilities of power in this source are increased or decreased a greater or lesser quantity of the color rays emerges through the filter. *It is this that causes shade of the colored light.* The color ray itself does not change. Its quantity of emergence through the filter does. So is attained darkness and brightness via darker color, lighter color.

Apply to this order of preparation that of a superimposed similar disposition in the white of light, and like variety in tint is obtained. Note well that not only the color itself may be tinted but the shades of itself as well. This is a noteworthy point. Otherwise a whole section of color world would be lost.

Adding the black or grey in the world of pigment or dye to the color parallels the decreases in the heat applied to the filament of the light source. Adding white to paint material is matched by playing intensities of the white of the light against the

intensities of the color of light. So the color is gotten. Its shades and tints are at hand. The application of tint to shade also.

It is in this way that on a light score the line denoting flux in intensities carries the color mark and not vice versa.

The color may be, of course, changed during and at any points of this fluxing by the light source adjunct through which the color filter may be changed at will in front of the selfsame lamp. Or, indeed, the fluxing in the color may be changed, added to or modified by play on another color source superimposed on to it. Both means are available singly or in multiple.

The color ray is the rare essence of light. It is the very light of the very light. It is born, not made. In it lies a chief glory of this fine art medium. Nuance reaches its supreme height through it. It is incomparably greater than the familiar secondary transmissions of itself, through dyes, etc. It is well to remember how multitudinous are the shades of differences it holds within itself. There are, indeed, so many they can more than match the slight degrees of variousness in anything perceptible to the mind. The quantity of the rays is so extraordinary. It is this that allows so vast a change in degree amounts.

Three hundred shades of one color out of one lamp alone. Six primary colors. These intermixed in various quantities. Addition of white for tint to any and all of them. The extension of the intensity power of one lamp to many lamps. The sum total in either more of the black or the white of the light. All these are perceptible to the human eye. Last, and not least, are the scale paths through which one and all can be made manifest.

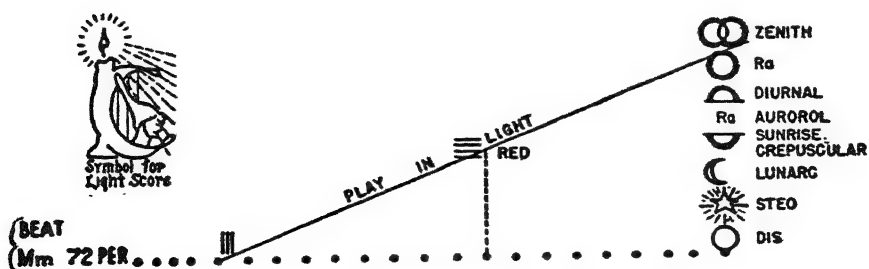
Is this all? Not by any means. There is the color merging, *subject to time*; its fluxing, intermixing. And, above all, there is the capacity for carrying import. There is the *meaning* brought on wings of this variety made within an ordered timing. *All this is carried by the notation.*

We have described a system for noting on paper a sequence in increase and decrease of timed light values in a come and go outside of color—a come and go of simply the darker, the brighter. Add the color symbol to the measured and timed curves of these lines and automatically the color of the shade is registered also. The shade curve carries the color, no matter if the color be made to change. The rate of the

progress is written before one. Its manner of come and go is seen also, as in a hieroglyphic briefness.

The line that represents on paper the light degrees in their progressions relates to given quantities of illumination. They are such defined quantities as may be put down by arithmetical label on paper. It is the various specific quantities for which the scale unit was computed. Such quantities may be one given forth by a single light source. They may be divided among more than the one lamp unit which together aggregate the rated wattage. In this latter case one scale path may be the modifying means for more than one color simultaneously. This is because different color filters may front these several lamps among which the maximum quantity above mentioned has been divided. These may be placed further apart or closer to each other. In this way the result gained may be spread over a lesser or greater extension in space. And this space matter will be shown on the score also. On different scales the sum totals may be doubled or trebled. It takes long to tell that which a mark makes brief.

We can picture this through a sample notation as follows:



There is still another factor. It is the one that through the mechanism for changing, from the console, the color filter in front of the selfsame lamp, a color may replace another along the one line in the notation. The line will show the play in one color until the mechanism for changing the color of the one source is used. Then the color will be replaced by another.

I know of the statements that the colors of the spectrum are not in artificial light of equal quantity. There are reasons for my saying that the replacing color will, in its shade, take the place of the identical shade degree of the one transposed. Light sources are now more perfect in their give. The different colors of the spectrum have each a finer or grosser effect on the eye. There are many considerations that the mechanism automatically takes into account.

In the above notation of light play on paper the lamp giving forth "blue" is made to yield "red" at the tenth beat. It is in this simple way, granted the instrument with its scales, that the change will be noted on the light score automatically. The same scale shoe will be used on the identical scale path when the change in filter is made by remote control in front of the one lamp. The filter in front of the lamp need but be moved or replaced by its remote control.

Should two separate light sources of the same power aggregate be used on the one scale path each yielding a different color, there will be a merging in the two colors. This would be represented by a combining of the color symbols such as: "|||≡" for blue-red or for red-violet "≡\\.".

This meagre exampling will but de-

note the possibilities. It is a simple, an easily followed beginning. There is a wide choice possible, of course. These the notation can take care of. Not the subtlest of autumn color showings that cannot with practice be attained—the smouldering purple of the eggplant, the solemn green of the curly kale.

The proportional or comparative amounts of two or more colors are self-regulated by the thought and work already put on the scale path. They may be intermixed in the wanted proportioning even by and through the single filters as described. The intensity degree can remain the same though the color be changed.

The simplest use of this notation, as a beginning, will be found helpful to concert auditorium, to the field of dancing, as a fine art of itself, finally to the theatre manager or producer—the opera, the musical comedy. Even skating performances on ice have been featured by light-color play.

It is to be remembered that the number of color lines used in each symbol can also denote the proportioning of the colors. Three of blue to one of red would be shown as |||— or one of blue to two of red as |=.

Should tint be wanted, a line put down for the white of the light will denote the amount of unsaturation used or wanted at different moments.

Since there are three scale paths for the initial, the darkness end of the color degree, these lines may be used on the light score one for each of these. Each one may carry its own symbols for the intercolor flux. Such interplay is a new world, spelled together.

*The light score perpetuates the plays.* These get their value through all that they may transmit in the form



of human expression. The message is winged out through choice in their speaking values, quantities, extensions, their undoubted capacity for suggestion. Is not a coffin draped in black? Does not a bride wear white? Is not color of raiment worn subject to mood? and necktie also?

Such a notation at its simplest need not await this worthy instrument here written about being more widely spread. The infant art has had to plough through two devastating world wars. It was launched in an age of hurry-flurry. The automobile created an unparalleled rushing of hither and thither. Never, in the entire history of the planet was there such quest for huge wealth quickly acquired—for quantity production of goods, of careless or easy turning of these out, regardless of the fine in human nature—of the finest in human nature.

But once the push is put back of the making, it will be seen how easy is the process. For has not the work been done? Is it not here placed before you? The manufacturing drawings are available for those who wish to make the instrument. It is said that a new commercial activity is needed. Here is one to hand. Use of even an embryo notation may demand the way. Desire to put the line down means the organ for making its result visible.

The phrase: "manufacturing proposition" seems to mean anything that could be turned out "hand over fist" with much zest and little care. The age so far has been veered away from, has been made to have no stomach for the fine. It had no time, it said.

Under parallel circumstances could a violin, often spoken of as the king of instruments, have come to pass?

It is well to pause and take account. This war may prove that the "nigger service," with apologies to the negro, is not everything. Have we not had liberty ships to prove the point? Ones that broke in two on their launchings?

Then, too, the very beauty of the spectral ray, its well-nigh miraculous exquisiteness worked against insistence for fineness in its first, its early use. Why push a thing to its best when any kind of showing attracted at least some attention! So there has come about a fine art tragedy. Or was it near tragedy? For the originator has kept on pushing with all the energy the situation allowed. Signs are being given that an awakening as to these matters is at hand.

Still one must say regretfully that the notation as described at its highest and best is not for the now. It is not at its best for the equipments, "not according to Hoyle," in use now. Its proper arrival must be in the nature of prophecy. Its full use in the future is full of misgivings, apprehensions, anxieties, doubts and fears. Its value is realized. There remains but to raise the art to a more perfect practice. It is still another way through which the works of men may be made to shine. Let us hope "a David will come to justice."

It is now more than twenty years gone by since my U. S. letters patent No. 1,385,944 of July 26, 1921, for "Notation for Indicating Light Effects," was issued to me. I still think it ideal for the purpose as well as for further uses in combination with still other situations. The specification, claims, and drawings of the above patent show the way to the ends required. They are fundamental. They allow of further development.

THE WORLD'S FIRST ILLUMINATION SCORE FILED AUGUST 18, 1919. NOTE THE ATTEMPT AT REGISTERING ACTUAL MILLI LAMBERT LIGHT QUANTITIES THROUGH CIPHERS TURNED INTO SQUAURES. BELOW, PART OF SHEET 3 SYMBOLS FOR RECORDING LIGHT AND ITS PROGRESSIONS

M. HALLOCK-GREENEWALT.  
NOTATION FOR INDICATING LIGHTING EFFECTS.  
APPLICATION FILED AUG. 18, 1919.

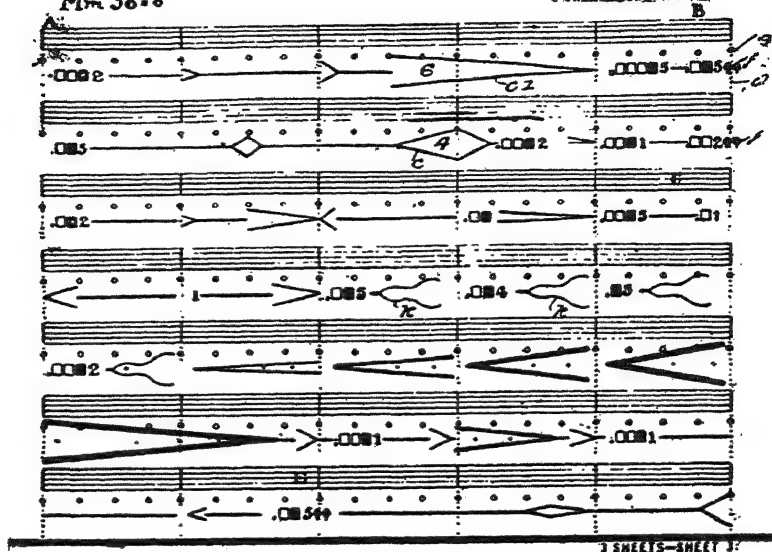
1,385,944.

Fig. 2.

Patented July 26, 1921.

Mm 56.0

3 SHEETS-SHEET 2.



NOMENCLATURE

Brightening  
Darkening

Twilight Arc 1/2  
Auroral Arc 1/2  
Diurnal Arc 1/2  
Dazzle Arc 1/2

Bar Marks

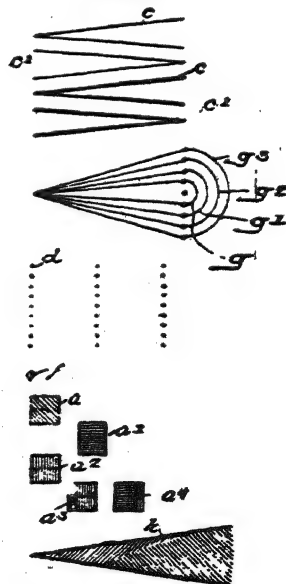
Unit of white  
Color Mark Green  
Blue  
Red  
Proportioned

Merging Color

Inverter

Mary Hallock Greenwalt  
By her Attorneys

MARKINGS



# VIII INDENTITY OF NOTATIONS WITH INSTRUMENTAL PARTS

## CHAPTER

TO FOLLOW a train or succession through connected parts from the starting cause to the resulting effect is a fascinating diversion. To get an effect from motivating this cause is equally engrossing. To get the way in which many such fulfilments are to follow each other, by obeying the demands of marks on paper, can be a potential of power untold. It is a further wonder when the human element is an essential principle, a concentrated essence, a motivating elixir within all three. Train of thought and feeling, followed out in train of motion through such material agency, may be of a not inconsequential might. This is something as that happens in playing on the Sarabet.

There are now a wondrous lot of mechanical interlinkings used as working agencies. There is the telephone. There is the telegraph, aeroplane flying, etc. None of these are a part of the subtle organization of the feelings and powers of the complex human *sensory*, and its demands for or in expression.

I include all that are not of this last, when I say that the most astonishingly repaying is to make a small motion of the hand on wood or fibre and see an unbelievable glory appear through spectral color as by a superlative magic before one. It is the causing to come forth into view at will what may be thought of as the miracle of miracles in the general scheme of Creation. It is light in its jewel excellence. It is this in a quantity and spread and all variety controllable, heretofore unheard of.

Pick up the telephone receiver.

You may be a raging lion within. You may be harboring a loving dove in your bosom. The object is but lifted. And it matters not *how* it is lifted. How different is such hand touch in fine art production.

We are about to see by the final results of this "global" conflict whether mechanics and the mechanical viewpoint are everything. I would stake much on the belief that *it is not everything*.

So now we come to the identity of the different phases of the notation for indicating light effects, with their instrumental counterparts. In between these two lies the human equation. And this summing by the two quantities is read also between the lines of the light score by the player following it. He will strangely feel that which cannot be shown in the printed or written lines and markings.

The instrument is made up of forms shaped in matter put together. Not so the *manner* of the motions exerted on these by hand and foot. These carry a weightier burden; though it is a burden of so immaterial an essence as feeling.

So now as to the playing of *you*—thou light of my hopes, thou light of my soul, thou light of my eyes, thou Koh-i-noor. For every person who will play this art is of moment to it as well as me.

It is fortunate that cuts of the actual instrument and its parts can be reproduced here as a clarifying reference in connection with the describing words. To refer to these makes understanding simpler. There

are several of these instruments being currently played on in existence. This makes the revivifying of the subject, as a whole, easy for one not too tired out by the fray.

"As for my very life will I stick to the apparatus means." So I wrote in the introduction. Here, as much as at any other point of this narrative, must I abide by this wise decision. For just as the written letters, words, sentences have their counterparts in the vocal machinery of man so have these marks on paper, denoting light play, their corresponding complements in the instrument of practice. The pressing out of it, the pervading sense or spirit is of a capacity cradled within. As these also are a part of the flesh of speech. Back of the instrument is, indeed, the man. And this in his *all* mightiness.

The feeling is marked as being made in the red of the light? It is so marked on the sheet? The hand goes to the actuator that energizes the lamp head carrying this red filter before it. It is a train of apparatus that yields the result. The thinking back of the sequence has been done for the artist and noted down on the sheet. He needs but to play what is on this sheet through the called for instrumental parts.

The line slanting up, made on this piece of paper, refers to the movement of the slider or shoe towards the right along the scale path. Conversely, the line shown as moving down asks for motion towards the left. Undulation within the line means a back or forth in the motion. But this undulation, this back and forth is of definite ordering as to the points of play. Sound has no such measured sway in its loud and soft.

The degrees of darkness and brightness have each their own particular contact blocks. And so these have their place and part in the marking on paper also. And this is so even in their flowings. As we have said, the timing is within one. The dots mark the elapsing of this in orderly beats. It is the orderly beats asked for from the within of the playing artist's body. It is the common factor within all.

It's a "long, long trail a-winding" that has ended in sheets, which placed before their respective light sources, give forth the true primary colors, their secondaries and tertiaries. It has taken long for the root of all color to be dependably chained. It has taken fine art to make it yield the accountable, the reliable in itself. It would take a most talented barker shrieking out the excellence, appeal, and value of his wares (and withal a hungry one, prodded by want to do his best) to do justice to these correct and accurate adjuncts of the apparatus. They separate, disintegrate and make visible at will that which would seem to be indivisible in the light ray. They set straight a confusing path.

And as it is, the simplest of little lines will note their kind down. And being a part of the chain within the apparatus, the smallest motion of the hand will force their doors, will cause them to appear as wanted, and as called for.

The stirring within a mind and heart and soul is registered in the marking for light-color playing as a means of aesthetic expression. The artist will note. The inner sense is there also for the duplication and replaying with understanding. The conception at large is seen on the

paper. It is fashioned and refashioned wherever the instrument is, and the player thereof at hand. And this may be by anyone, anywhere. The art is in this way not outdone by hieroglyphic or library.

The timing. Perhaps it is a happening started outside us. The particular recurrence used here is now of the within us. It is so much of us, it needs but dots to mark it. The dots are but a matter of space. It is the we of us that provides the time. So the art is of body's very own. It is snatched away and apart from the Universe, as a whole, that is outside of the very particular which is us.

The counterpart of these dots placed along on the sheet is not found in the instrument. It is not shown on the material elements that compose it. It is found in the human tool.\*

"Light-score." Here I have made two words into a one new conjunction. It is one of three words, with their definitions, awarded a prize by the editors of a famous dictionary.

Light-score stands for the written or printed notation by which any sequence of light-color flux or play can be registered and its timing marked for duplication or replaying on the instrument constructed for the purpose. Here is stressed the identity between the marks of the notation and the instrumental parts which make palpable, visible, apparent, evident and manifest the content carried by these marks. And so a rethinking of the human bells that set them vibrating is made actual and possible. The notation interfits with the object through which the practice of the art is made.

First comes the conception in light.

This is then distilled through the alembic of the artist's soul, tested, purified, transformed. After this it can then be made concretely visible through play on the Sarabet. Down it is put, in notation. From soul to body, to arms and feet—actuators, scale paths, lamp-head units, color filters, silvered interior. Behold the range of the arrow seeking the viewer's heart and made to plunge therein. The hanging together of the whole proclaims the legitimacy, the authenticity of the art. It is light several worlds removed from causing objects to be seen. A muddled emotion can have no place here. The medium of itself allows only clarity. It alone makes everything visible to the eyes. And in this to the soul.

The achievement is noteworthy. The devising of a score for colored light has meant a severe labor. Its necessity was no less a one than the task of recording a sequence in expression made through the spectral ray. That this capacity for expression is within it now needs no proof. Its practice has made this plain beyond peradventure.

The instrument is the notation's body. The artist is its god. The compositions the musician plays were first conceived by the composers thereof perhaps miles away—perhaps long since dead. But they were put down in the form of musical notation and so not lost. The notation for light-color play performs a similar service for conceptions made through light and its color.

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See my "Pulse and Rhythm," *Popular Science Monthly* for September, 1903. "Pulse in Verbal Rhythm," summer issue of 1906. "Time Eternal," *The Metaphysical Magazine* for 1909.

# IX

CHAPTER

## THE LIGHT-SCORE AND LIGHT-SCORING

WHO could have guessed that not only one but a number of books have been written on the subject of the compounding of words. But such is the case. Indeed, these are not just books. They are tomes. Some one of them has spoken of this commixion, commixtion, commixture as the blending or mixing of word ingredients into one compound.

After nibbling at these volumes I am free to confess that there is more to the subject than would at first meet the eye. Indeed, that it is correct that many pages could be spent discussing its merits and demerits.

In case you might yourself happen to want or need to put another compounded word or two within the compound that herds many such, within its stocks, I will quote one or two definitions given by the above books of a compounded word. These are:

1. A word composed of two or more words united, with or without a hyphen.
2. A compound word is one word made up of two or more simple words united.
3. A compound word is any combination or collocation of words in which their separate force and meaning give way to a new unit of expression in which they cooperate.
4. Abnormal association of words generally *indicates unification in sense*, and hence compounding in form.
5. A compound word conveys a unit idea, that is not conveyed

by the component words in unconnected succession.

It looks to me as though definitions are as good English as patent specifications—and for the same reason: they both go simply and directly to the point.

"Everything seems to go" in this unifying of a plural. A hyphen may be put between the compounded words or it may not. The words can be separately placed or they can be joined. In fact we are told that "compounding is an art not a science." That pleases me well. And also that "compounding reflects character." Otherwise expressed: "Good compounding is a manifestation of character."

As to the hyphen, we will boil this down to the following: "Use the hyphen when its absence would obscure the meaning and encourage misreading or delay the progress of the reader's mind." Also, "It must be distinctly borne in mind that the words for which hyphening is prescribed are constituted of a noun and a verb form in -er or -ing, with the first member naming the object of action that is implied by the second constituent."

The case has been posed for the compounded words heading this chapter, "light-score" and "light-scoring." I made them. The art brought them forth.

Being an artist my feeling is that "light score" could well be two separate words united but without hyphen. Whilst the rule makes plain

that "light-scoring" should introduce "Mr. Hyphen."

These two-word compounds are not occasional. They are permanent. Their "collocations are words of separate force and meaning giving way to a new unit of expression in which they cooperate." It is not possible for this art to do without them. Even the simplified "light cue sheet" written out for the white of the light, to be used for but one fugitive moment or two in the vaudevillian's exit off the stage, is a light-scoring of sorts. Such, points to the indispensability of some form of notation. "Cue sheet" does not "fill the bill," though it, undoubtedly, has helped "foot the bill."

So here I have coined two new words through such compoundings. They represent a new kind of activity resulting in a new kind of object. It is an object of record for record.

To write down, to note down relieves the mind. It allows of an invaluable perpetuation. To "light-score" is an activity that should by all means be nursed along. The simplest starting will grow. Just dots made along a sheet to be tapped out noiselessly by the foot with the sim-

plest color notings for color are a beginning. The diminutive lines shown will do it. So please, I beg you, "Rise an' shine and get on to glory, glory, For de year of Jubilee."

Such start may be used by kitchen mechanic — excuse me, stage mechanic—in dress suit or out of one, on moveable platform or hidden behind the wings. *The mark on paper is an essential of civilization.* This one is not excepted.

So the phases of color get not only a naming, but their varieties for progression get a hieroglyphic for such forward moving. The beautiful vagrants are caught, are fitted into place, are made to sing a notable scoring.

The notation herein described is a light-scoring. It is an account kept by marks of the collective light-color play appearances made through individual inspiration and their individual performance by and within the spectral medium.

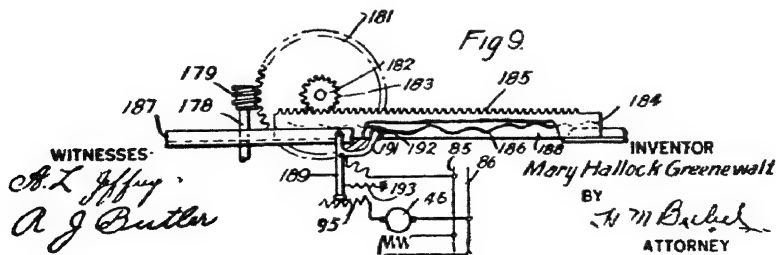
One can say of it, as has been said of another notable means for record:

"A word is dead, when it is said

Some say—

I say it just begins to live

That day."



AN AUTOMATIC REPRODUCTION OF A DARKNESS AND BRIGHTNESS PROGRESSION IN LIGHT AND SPECTRAL COLOR. AUTHOR'S PATENT NO. 1,793,284

COLOR switched on automatically, we have in plenty. It belabors in too much plenty. Spread over the streets, especially at night and on a rainy day, it is a veritable carpet of pearls for many swine to tread on, and still more swine to profit financially by. This much use is unnecessary. It gives a sense of opulent grandeur to a people that should seek display in and through the finer qualities of the self. Perhaps impoverishment brought about by current happenings will cure this inflation of personal aggrandizement in this direction as well as others.

Cheapening of the glory of ray color, even for "traffic" signs, is a matter not right or needed. Two sets of forked lines, lit at night, only would be ample and such need not be further embellished.

That which has been called Colour Music is a world galaxies removed from switchings on of bulbs or tubes for this or that advertising and other purpose, whether in a given automatic rotation or singly. A sequence of ray music fraught with a human meaning and message is an art of super or extra fine proportions. All cheapenings of the medium used for this should be blanked out.

There is no reason why a light-color play sequence, conceived and recognized as worthy, should not be "canned" by mechanical means for future ages to enjoy.

Nourathar may have its automatic reproduction provided for by mechanical means just as well as a

sound sequence may. But don't, if you value your future life, or the influence of your life on future lives, attempt to make the selfsame mechanical action carry both natures—those of sound and light simultaneously by the selfsame expedient.

This has been attempted at great expense by one large company that should have known better. Through vacuum tubes loud sounds of music tripped certain switches governing light sources. This fallacy or delusive reasoning seems to one expert in both arts to suggest brain cells so underused as to spell disarrangement. In it there is an utter lack of recognition of the complete difference "root and branch"—"tooth and nail and hymn book, too" of the one from the other. They are so different in kind as in no way to be treated as phenomenally or mechanically identical. Spectral ray music is not vibration sound music.

Should inspired conceptions through light-color playing ever be "canned," through mechanical reproduction, they are, first of all, dependent on the light-scoring of such sequence being available. They are dependent on the notation registering on paper the sequences to be automatically reproduced. Such a sequence is not safe in the hands of memory. (Is this a mixed metaphor? If so, so let metaphors mix.) The notation allows the needed time for making reproducing record.

The record will replay through the light-color play instrument as the



hands and feet originally did. I think there could be no proper short cut there.

In my very first patent I allowed, with misgivings and doubts as to its dangers, to have included a drawing suggesting such automatic reproduction of a detail in Nourathar. But even then the important factor, that of the darkness and brightness nuance, was left to the hands and will of the individual seated at such an instrument. The light sources were energized only in the above way, the real playing was not. Even those light sources were entirely independent, separate and distinct from any parallel automatic play. Where music or other sounds are automatically reproduced, the hands and feet are left free for an added contribution. Some factor automatically brought in could help the much to be looked after by these limited members of the body. Light play alone needs both hands and feet.

Round and about that time I signed a contract to make some phonograph records of my piano interpretations with a large recording company. This gave me the quite base (?) idea of creating a light and music phonograph. The patent application covering this was drawn and broad claims allowed me. The patent is No. 1,345,168, issued June 29, 1920. This followed my filing of my patent on "Rheostat" dealing with the scale of least visible increments which was filed in 1919.

My light-color play apparatus, included in a phonograph machine shown in this patent, carries one noteworthy factor. This is the mechanical means for handling variously the *darkness* and *brightness* control of the light being played on. The

control was carried out through a cam variously configured. So that from the very beginning, my careful thinking on the subject, my various experimental steps pointed to the play on darknesses and brightnesses as of main importance in this art.

Indeed I computed what a scale of least visible increments would consist of for such low power bulbs as a phonograph unit might and could use. Such were to be enclosed in the comparatively small housing such quasi-toys were given.

The very first sentence in my light-scale patent No. 1,357,773 reads: "It has been found that for a light capable of giving forth thirty-two thousand six hundred and ninety-seven milli-lamberts of brightness as many as two hundred and sixty-seven perceptible gradations, and in a light having a capacity of nine hundred and eighty-seven and ninety four hundredths milli-lamberts of brightness, as many as eighty-six perceptible gradations in the full intensity of the light emitted may be produced by properly varying the intensity of said light from that value existing when the lamp is operated at its rated capacity or full candle power, to that value which is just sufficient to cause it to pass from a condition of absolute darkness to one in which it begins to give forth light; and one object of my invention, etc."

It was the computing for the nine hundred and eighty-seven milli-lamberts bulb that was used in my light and music phonograph. Was it a bulb of eighty-five-watt capacity? I forget.

The unit was made. The base was a beautifully modelled female figure. The arms held aloft a half globe holding the phonograph and the

light and color creating apparatus. The other half of the globe, its upper half consisted of semi-ground glass.

There was a connection somewhere between the motor in the instrument and the cam travel and light source energizing. The timing, which as we have seen, is identical and nothing else was considered in the mechanical juncture. Imagine my horror to find that the individual, set to reporting on the unit to his company, stated in his report that the color leaves were whirled around with the record bearing turntable. It may have been that the patent attorney, who held a retainer with one of the very largest electric companies, deliberately inserted the bit of poison in the specification. I know that I never had such idea or intention. Indeed, the patent does not carry any such provision. The whole patent application and its specification show the utter absence of any such intention.

I took my small resistance specifications to a manufacturing company. I was told by the proprietor they were making a socket that reduced the light of a bulb for use in a bathroom and he did not think it wise to do anything that ran "counter to this" (sic).

The glass globe, gotten with great difficulty, ran against the general intrigue. A mechanic being used in turning my house into an apartment dwelling took it. Apparently, I was as nothing to be considered. "He," he said, "was experimenting along similar lines." It is immensely interesting to me to note the growth of cleverness in influencing individuals to act counter to their better natures.

This was stealing or handicapping, via the cat's paw method. The light and phonograph unit I had exhib-

ited at one of the meetings of the Illuminating Engineers' Society, and with great success. I daresay much jealousy and desire to undo lurked about as everywhere present as electricity itself is.

Whether by cat's paw or by psychology, no country can go beyond this one in its elevation to the highest degree of the talent of big business to take that which belongs not to it without pay or thank you. The salesmen have to make good or lose their position. They make love or destroy in the process, either.

One means particularly canny is worthy of mention here. They sell to an individual by getting it into his head, by round-about ways, that *he* was responsible for the invention. In this art this was done from carpenter to painter, mechanic and to the showman most talked of in this country. The date of his birth happens to be enough to put him out of the running.

And all this also goes into a compendium dealing with the subject matters of this art for it is a sample warning to others.

It should tend in the years immediately ahead to seeking to restore the dignity of the human spirit. Only the severest punishment to the country as a whole will, I am afraid, do it.

In my patent No. 1,793,284, "Current Translating Mechanism," I show a cam control for governing the increase and decrease of the illumination quantities, Fig. 9, in a large way.

Nevertheless, such lighting up of a "box" with glass fronting for making music, I am told, is in use. Are they joke boxes or "juke"? I know

not. I have not seen. One with phonograph music in attempt at combination, I know of.

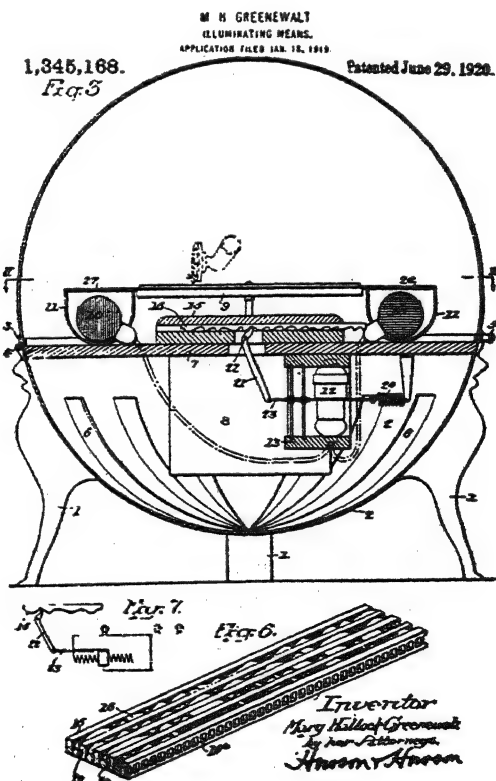
There is nothing to prevent the automatic reproduction of a light-color play sequence conceived as a means of human expression. The reproducing means would, of necessity, follow super-sensitive demands.

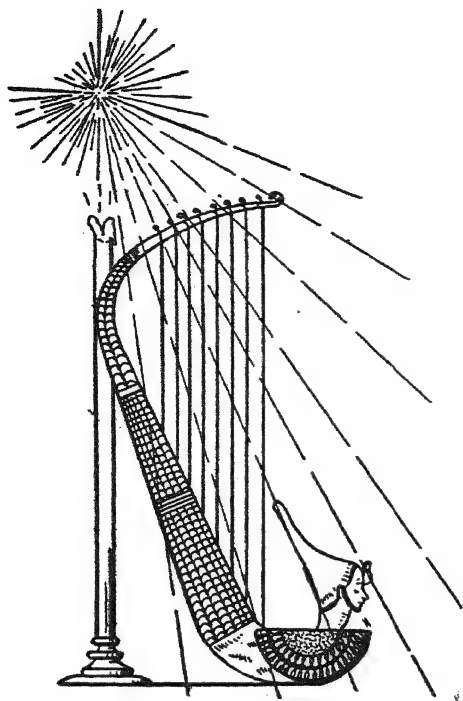
But before such reproduction is possible the instrument for the initial creation must be in use, then the conception and its notation on paper. After that the automatic means for the reproduction of the conception.

These, it is true, may be of an extremely simple sort. They may be also as subtle and exigent as feeling itself.

"Canned Music" is a "smart alec" term. It refers to automatic reproduction of performance produced first in and by individual performance. It is performance imbued with the personality of the particular person creating it. It is of his identity. It is individual, distinguished from the individualization brought into existence by others. Such performance makes for a differentiation of the individual from the universal and from that which is brought out by any other individual. *"Canned" color ray music is entirely possible.* It would follow like definitions for the perpetuation of art results *different from those produced by any "other of the fine arts."*

THE FIRST AUTOMATIC CONTROL OF A BRIGHTNESS AND DARKNESS LIGHT SEQUENCE. THIS IS OUT OF THE AUTHOR'S PATENT NO. 1,345,168 APPLIED FOR JANUARY 18, 1919. THE SUBJECT MATTER OF THIS PATENT ANTEDATES MANY A BOX LIT UP AND HOLDING MUSIC - MAKING CONTRIVANCES





## PART FIVE

### *The Technique of Play*

#### I

#### CHAPTER

### AS FOR TECHNIQUE

action made him feel more natural and at home. This helped that attitude of mind for relaxing of muscles, wherein any rigidity could be fatal to the required exigence of the play. The effort to be made did so well nigh require the miraculous. Even this maneuver counted.

He played these supreme works with such utter perfection and beauty that the angels could well have shel-lacked their wings and come down to earth to be pianists also.

This must have been around and about the time that the major baseball leagues were forming. Newspapers were full of baseball and had no lines for the pianist who played Beethoven with such unequalled perfection and beauty that even that order of spiritual beings said to be endowed with immortal life could well have wanted to do away with their wings and come down to earth to do likewise.

Finding that bat and ball had displaced him in newspaper attention made him very wrath indeed—and I am one who cannot blame him. "What is this baseball?" he said, contemptuously.

A great batter makes, to be sure, one truly noteworthy muscular movement within a leisurely period. The

THERE was once a very great pianist and his name was *Hans von Bülow*. He was Cosima's husband. And Cosima was a daughter of *Franz Liszt*. And her second husband was *Richard Wagner*. She cut her glorious hair off when he died.

Von Bülow was making a concert tour of the United States. His piano recitals were made up entirely of the peerless Sonatas of Beethoven. It was a feat among feats. The task was of a superlative difficulty. Even the great could not do it but under the most perfect—to the performer—most natural circumstances.

On a little table to the back of the concert stage von Bülow would, on entering before his audience, lay his hat. On going off he would pick it up. The hat was not in the least used in this by-play to cover his head. It was just that the very

\*A pleasant symbolization of light-color play enveloping still other fine arts.

piano instrumentalist often performs at the rate of six to eight hundred interreciprocal muscular co-ordinations per minute. Each and every one of these is of a complex but harmonious interaction—of finger, hand, and arm in an interchange of action. Each one of them borrows of the miraculous.

The batter needs no memory. The pianist shows a stupendous one: note memory, muscle memory, successions memory are but some. He must in recital exert mesmeric force, additionally. He must drive home the subtlest feeling through and during it all. He must do this withal through the mediums of wood and wire and ivory and such massive material resistance. The executant musical artist has a righteous right to feel superior over other forms of muscular activity. It is true. The angels could well envy him his superb achievement.

The player of light has much less to contend with in this matter of speed. The eye is leisurely. The ear asks for quick and complex change. There is, however, a well-nigh infinite variety within the light color to be kept in mind. These are so numerous that evolutionary factors must have perforce limited, willy-nilly, the root sources of these to six only. Physical being could not otherwise have coped with a sense wealth greater than this within this medium.

I am tempted to tell another true hat story here. It has not the least to do with the matters of which I write. It is amusing. A well-known actor, who was very tall, wore a heavy high fur and felt hat as part of his stage costume in a certain play. In an aside to the audience he said he was grateful for applause for

it excused his taking his hat off. He also on occasion laid this hat down on a small table on the stage. When next he came on behatted, I began to applaud vigorously; my companion seconded. "Ah, a friend!" he said and took off the unwieldy hat. Amused looks in the audience rewarded our "coup d'etat."

I should not. I know *I should not* use the words "jumping jack" in company so princely as fine art. But there is less of a jumping-jack nature to light-color play than to play through sound. Light-color nuances command, however if anything, greater discrimination than do the mediums of other fine arts. The variety that can be called on within the nature of this light-color medium is numerically so much greater.

Light-color playing has one comforting advantage over violinist or pianist, in that results of a sort may be arrived at, at once; that is with no, or little practice. These are arrived at without the incessant, soul-harrowing repetition and hours of repetition demanded by the above-named instruments before any acceptable attainment is reached. The beauty of the light-color medium rewards in any sort of showing. It is ready made for one. It does not require unending labor to create it.

But the art does have its own form of technique. And this is not too easy. It is not to be slighted. It is to a certain point not too quickly attained. Technique in every kind of instrumental performance demands complex impulses from the motor centres. It calls on combinations in nervous force. Nourathar is no exception. Here, too, various chains may be followed in travel from the cause to the effect. Those

that went to fashion the instrument are not all. It is tinkling bell interlinked to bell. These are chains within chains of muscular impelling, of mind, impulse of what is known as soul showing.

When, for example, the pianist worthy the name seats himself at his instrument before an audience he first takes account of the state of the general muscular systems of his body entire. He limbers himself down to the flat of the chair he sits on. Though it is the fingers that act, relaxation and co-operation in other parts of the muscular systems that make up himself are needed. The whole muscular circle is of importance, even as in the single golf stroke. In this way should the Nourathar artist also settle himself when seated at his Sarabet console, prepared to give out his very innermost—the light of his soul through the light of his eyes.

Give your weight to the bed at night and your body's energies are free to no less than all the initiating forces of the Universe entire. The Universe as it launched you forth continues to support your body and so to foster *you*. It is a very house that "Jack built." The bed rests on the room, the room on the building, the building on the earth, then our galaxy of stars and all the galaxies. In this way to the very first causes that started the whole spinning. In a way something akin to this the artist gets a support from the all when he settles himself in the chair or bench.

Relaxation is not second to attitude of mind. Technique of play is a large subject. The man is complex. In color he has a choice for the making within a myriad ways. To fit

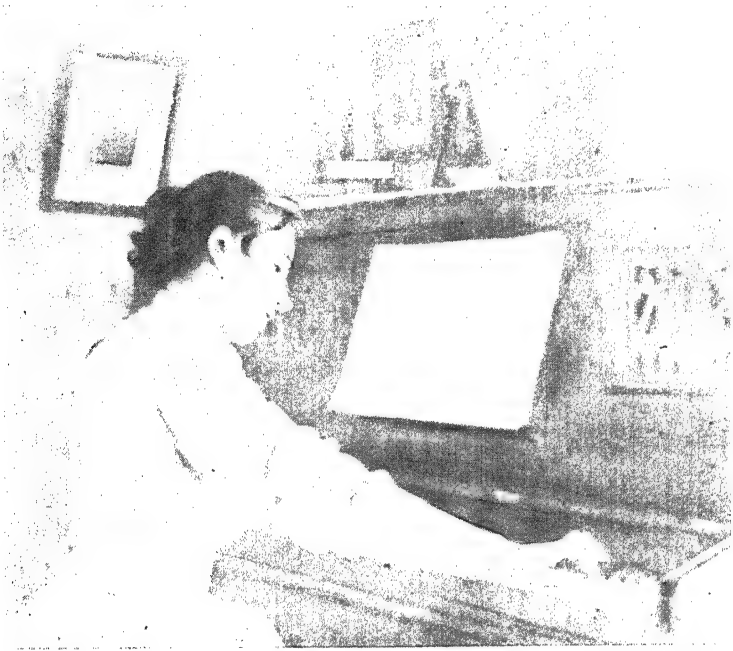
nuances of light to the circumstances of expression is no cheap "tour de force." It is artificial. It is beyond nature. Though it have in it ages-old effects brought about through the behaviors of suns, and moons, and clouds, it is used as a new means of expression: new as the human body is new over the chemicals that are a part of it.

Thorough knowledge of technique is necessary to the player through light. Only by means of technique may he pass the message on. First through his body, his arms, his hands, his fingers and feet. Beyond these the audience can be brought to receive the inexpressibly subtle burden of what heart and mind and soul have to give. By these directions he forges the way into the beings of the perceivers. According as to how much the individual auditor belongs to the quick or the dead will he feel, will he get the stirrings transmitted. They are bound to echo in his own heart and mind and soul, as they are delivered.

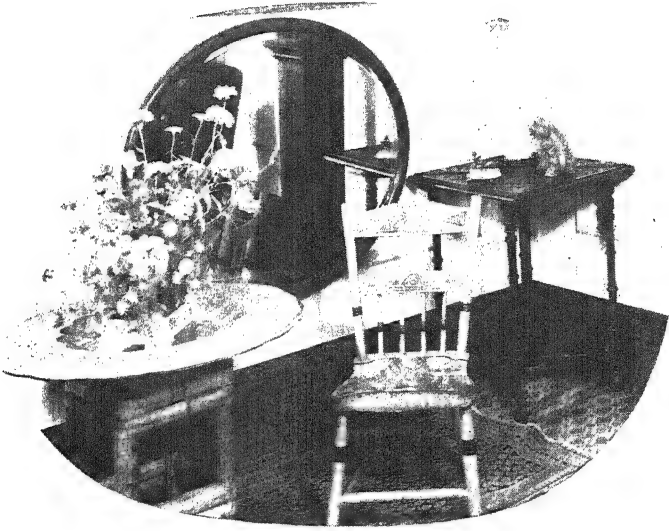
Books have been written on *how* to listen to a concert. How to *see* a performance has its parts also.

Both consciously and subconsciously the performer works. To myself, who has had experience, the problem of problems is how much may the intellect be alert and not handicap the subconscious feeling in the actual stage performance. The innermost beyond the intellect must also have the right opportunity to shine through.

Apropos of this. There was a time when I was conning over carefully this subject of the conscious and instinctive in public performance on the piano. A well-known pianist was going through the lobby. I asked



MARY ELIZABETH HALLOCK AS A  
VERY YOUNG GIRL, AT THE PIANO



A CORNER OF THE AUTHOR'S STUDY



him: "Do you think of every note as you play it?" He answered "smart alec" fashion: "Not in the trill." He was a pianist of finger rather than of spirit. His answer was, I think, a confirmation of the fact.

So technique drives much more than a "four-in-hand." Many reins are held in leash. So the immeasurable in character is made manifest. So we see the being that is Raphael, or Dante, or Beethoven or Brahms in their works. Indeed we do not have to be told even the name of the great one, who is interpreting their works unseen. His conception is superimposed on to that of the creator of the work. Both relay their mark.

Mr. Paderewski once played for me, in private audience, his "Concerto in A Minor." I was studying it and the opportunity was arranged. I was standing by him. I could see that when his own innermost feelings became engaged in his playing his eyebrow had a trick of getting raised. Some time afterwards an automatic reproduction of one of his interpretations was reeled off to show me how perfect such "canned music" could be. Every once in a while I said to myself: "There goes Mr. Paderewski's eyebrow." Yes, the music automatically "canned" was that perfect. The tempis of even the single notes were well-nigh perfectly reproduced, together with their other factors.

I am grateful that early in the course of progress I had occasion to prove this sensing of the immeasurable even in the native disposition of a person, through his manner of handling the light-color play. A Filipino college student was recommended to me as a performing as-

sistant on the Sarabet. How sensitive to extremely slight changes in light nuance he was! How deliberate! How quiet and reposeful. He shamed me. I wanted always to cover the whole color map at once. I can't help but feel that in him the Japanese element existed also. Note the exquisite fineness sensed in a Japanese print.

My plunging may have been bred of exasperation, of nerve weariness, following intense labor. Nervous depletion! Not only character and race but effects of training proclaim themselves.

A Catholic priest brought unusual repose to his handling of my light-color play instrument in Chicago. I mentioned it to him enviously.

Man performs miracles. Not in the manner usually thought of. It is beyond question that through fine art he makes advance in his line over Creation's showing. It is in its nature miraculous. Experience in practice has proven that such play through light-color atmosphere has the necessary. Since it has shown capacity to transmit the subtle, how much more then will it show the obvious. But a technique must be fostered. The foregoing suggests the way.

For to picture a feeling through spectral ray nuance is not to give visible representation to such single integers as individual vowels or notes. Isolated bricks that are found by search as being in the edifice are not the temple itself. The man is a grand sum total. The hunting is for an unmistakable phase of a beauty which he can externalize out of a tremendous heterogenous mass of impressions he harbors within himself.

## II

### CHAPTER

## "TOUCH" AND "FEEL" AND "APPROACH"

**T**OUCH," "Feel," "Approach"—these do not here refer to words in the good diplomat's stock in trade. Nor am I alluding to a talent, or is it a genius?, that has been developed to the "nth" degree in this age: that one of "feeling" for another's, or all others', pocketbooks—"touching" the contents thereof in a truly wholesale way—nor the colossal "approach" to that end. These words are being explained in a more important connection, let this business age say what it will. They have a relationship within the *technique* of fine art production. They have in this field a specialized alliance. It regards that correlation of nervous functioning which involves a high degree of modifiability and consciousness. It is a part of creating the unusual in beauty through one means and another.

How surprised would the ordinary electrical engineer be (and all of them are ordinary (?))—I am leaning, I know, heavily on feminine prerogative in the daring) to find such words as the above useful, if not absolutely necessary, to the coherence or consistency of subtle performance by spectral color play. "Pulling switches!" back stage indeed!

The foisting on of a quasi-bogus art to replace a real one was done too quickly. A patient and long-suffering public was cheated through this reaping of an easy wide and quick gain. Unfit apparatus invites unskilled, unworthy performance. Did I say that man's destiny was to make an advance over Creation's natural showings? It is dangerous to create a widespread, wholesale mercantile

means by which such advance can be stopped or deviated from its right course. The wholesale throwing on of crude color, any old way, is a recent sample of this. Once in a forward position man can also be made to go back on an achievement fine. We have heard him retrogress below the barnyard fowl in some of the sounds supposedly musical he is now being forced to listen to. It is well to call a spade a spade. Surely, there must come a reckoning. There must be a going back to restart forwards, so far as so many of the finer things of life are concerned.

The words of the above title: "touch," "feel," "approach" are used here *for the first time* in conjunction with the muscular technique of playing on and through light. They allude to needed muscular sensitivity. They refer to making manifestations in light *express that which can be felt yet scarcely measured*. I doubt whether the psychological laboratory can ever "yardstick" such particular arrival. Whether it can ever unravel the complete source or sources of its power and this no matter through which of the fine arts it is made apparent. The subtlety may belong to that which will always be immeasurable in man. One can't help but hope that this is so. The hidden can so well ever beckon forwards.

Let us example it through *timing* in the rhythmic arts. We have spoken of the beat on and through which light-color play is orderlied. The metronome or clock can "so-many-per-minute" tick off its hard and fast

outer shell. Within these there is the delay or the quickening that is an immeasurable part of the timed effective utterance. It is not destructive of the spans creating this pulsing of the time. "*It can be felt but scarcely measured.*" A breath too soon, or a breath too late and the bloom is "marred on the peach." It is beyond the form. It is of the expression, of the inner message. It may be a part of a mesmeric holding of the attention. It makes living the approach. It creates that which is sensed; the "feel" of the interpretation.

This "feel" is the father of "touch" on the instrument of play. It precedes it. Such instrument may be the human throat as in elocution, or it may be the manner in which successions are brought through playing on and through the color rays. It is the particular subtlety of manner in which the change in the glory manifested is made to come about. It is a superexcellence in action of hand on mechanical contrivance.

I am reminded here of the most exquisite sample of both these in the playing of a homemade flute by a mountaineer high up in the Lebanon mountains. In this it was both throat and hand control. It was mind and much else over matter, in a subtle answering beautiful to a degree. It came once as a surprise to me, that this sense for subtle "feel" may be part of "touch" at the end of a pencil, turning out a beautiful sketch. I saw this tool being made so to behave in such subtleties as that which can be felt yet scarcely measured and unconsciously. Not only method but a sense beyond the method. The good draughtsman must show the sense also, as indeed he does.

What concerns us here is that these inexpressible subtleties are part of beautiful performance on the light-color play instrument through that wonder, the spectral ray.

The making of the apparatus to the ends provides, to be sure, springs, wheels, delicately balanced parts as a help to arriving at the best. A miracle, still and nevertheless, lies in causing them to move in a way to express the indescribable in fineness of transmitted feeling. I do not have to remind you of such being, such quality. You have heard it brought to you many times through violin or piano. The superlative muscular can take account of even a train made up of the hard material in mechanism *for the subtle soul-stirring end.* This sense for "touch" and "feel" the light colorist develops also.

The Sarabet is an instrumentality of which flexibility is an integral and deliberately planned part. The actuator and slider and color-changing mechanisms have been given attributes which allow the sensitive "approach" for the light moves to be made. And there is here a dual necessity. The second one pertains to *that* smoothness demanded by the exquisite mechanism of the human eye.

That motion of hand or foot that is gauged to a surpassing fineness and delicacy within a fine fraction of time is one of the miracles of fine art making. Perhaps it is the miracle. This, together with the living impulse within them and behind them that causes them to become.

It is hard to visualize that which has not been actually seen. It is perhaps possible to lead to knowledge of it through words. Take the approaching ominousness of a pending

storm. There is the gradual creeping over of a darkness. It is a creeping of a particular kind of darkness. It *points to a climactic moment*, perhaps of thunder, perhaps of lightning. This sample has in it, however, all the uncertainty, the remoteness of nature. Nevertheless, the darkness and its awaited slap of sound call forth a psychological feeling as to that which is pending.

But this instance is pitched to the great universal outside you. *It* does not follow your pulse. It is rarely of color pure. It is not played by man for man. It does, however, suggest, as remotely as the example itself is, that similarly darkness, personally handled, can be made to bring a feeling of an impending realization. Sensitive timing within the intimate of human body demonstrates the soundness of the art's vitality, its hitching back though of the present moment to the very beginnings of man.

Take the opposite. The cloud breaks. It breaks at the crucial instant and to a crucial degree. It may be just at the face of the sun. It may be at various points removed from it. In light-color playing by the individual, the resulting uncertainty as to the degree of the brightness can be made to bring on an expectancy. It is a heightening of the seeking for resulting feeling. Timed in practice of fine art to elapsing seconds the haphazard in it has gone. It then belongs to control of art, not to the "big time" outside. It is not of the big time extraneous to us. It is in a fine art form. And this, whether the conductor's wand oversees, or the metronome ticks, or just the recurrences inherent to and suggested by the body's very mechanism and by no other guide. There are other fac-

tors and many through which such finenesses can be brought out. It may be done by degree of the quality, the quantity, the extension and the aesthetic weights. Indeed, it can be made corporeally seen through all the categories. It may be used to the desired ends in an interaction of any or all these. The timing is but the policeman. All including in the timing is a part of the domain of "touch" and "feel" and "approach" in light-color play.

There is the muscular back of it all. The hand is on the actuator. A slight movement will call forth a heavenly color at will. The piece of mechanism itself has been so endowed as to allow flexibility of choice in the timing of the train of muscular action that is to move it. It allows of the muscle's sensitive "approach" for the fraction of the moment of time that the artist's conception demands. He *wills* that color appearance at the very instant the emotional sequence demands in order that it may register. His hand is ready for the "touch" asked for by the "feel." It is that one ordained as he sees it, by the conception as a whole.

What is meant then by giving birth to an issue of precisely the right "touch" for a telling "feel" for expression is indescribable because it can be so very various. It is that "approach" where the intellect stands still at its border edges and looks in and beyond where it some day hopes to enter.

And "what a man!" is this word "approach." This one is used much in the salesman's kit of jargon. In light-color play it allows the master a control for hold on his audience. He may move the piece, that calls

forth the color, up to the very door that is to open the emotion to be transmitted. Here mechanics has a part. The piece is hung and balanced in such way as to allow a soul to the muscular action that moves it. The mechanical *chain* that ends in the part allows play to the sensitive in the muscular *sequence* that is there to move it. And thus the very finest suggestions may be spanned from the touch of the player to the inner feeling of the one seeing. All the above will, I hope, make plain the value of the artist's vision in the making or manufacturing of the instrument of play.

The color is not all. There is the play in the progressions of shades and tints. They also can be made to permeate the marrow of the bones with the message held. This matter of shades and tints is of the play on the scale paths. It is not dyes out of vats that are being ladled out. It is darknesses and brightnesses *poured out as a thought at the end of a hand*.

The piece of mechanism, by motion of which the color scale degrees are brought about, is also balanced to a nicety on wheels. It is there all ready for the rare in timing. The choice in muscular action calls not in vain for the mechanical help. A thousandth of a second too soon, a thousandth of a second too late, and the delicious in tint or hue may escape the moment that leads to its recorded fame. The impelling push has an unbelievable variety of choice at command. Behold the chasm of difference between light as a utility and light as a handmaiden of the divine! A teaching in the practice of the art requires that the teacher be aware of the length and breadth

to which such subtleties can, should and may reach.

It is now not a matter to be proven. The fine art has been sufficiently used for its portents to be well guessed at if not definitely known. Certain writings by producers and others make this plain. They, too, have seen the vision. They accede. Further fosterings on the best instrument of practice are needed. From its use in conjunction with the old English Ritual, that has been referred to, to bringing enthusiasm for act of trained horse or flea and all vaudeville acts; as enchantment of dance and its music, the art is an established one. Is some *one* concrete proof needed? That the play of ray music, its color is the thing? Look! the horse is painted with a silvered paint. I am quite sure looking closely you might find an aluminum jacket on the flea.

But fine art calls across a range that is universal. She has a call that we answer as wood bird answers his mate. She has that which causes us to vibrate to our very core. It is an appeal one cannot resist. Are such lifeless things as bridges and towers and walls less tenuous than essence of life? It is said these are sympathetic to the vibration of the right throb. That they tremble and shake and rock and fall into ruins if that single effect were steadily produced near them. But it must be the right effect down to its subtlest potentials. Sound the clarions of fine art through the right technique and the worth-whileness of life is quivered up, up to its supernal.

So, this light play speaks in the way that the ominous may be suggested through the *manner of growth* in the brightness from the darkness

out and up. It is something as the way the most powerful and best of the air-raid signals, in their portentous up goings from the growling lowest to the highest, may be made to affect one. Except, that their scope is limited to the one effect where the art has myriads.

And it must be understood that the sense of rhythmic beat is but the groundwork on which unlimited subtler time trceries may be laid. It, this beat, conditions only in this way.

So, in addition to the general attributes that well-nigh anyone will recognize as belonging to the fine art of light-color playing, there is its own brand of "the down on the peach." There is required sensitiveness in applying the right "touch." There is need for the "feel" that will register its finest. And to all these there is the want of the correct "approach."

It is these that make the difference

between art and the everyday—better art and art.

How can one prove that it is through these, the subtle through the complex, that the worth of performance is created? No less than through the all powerful demonstrator and pointer to what is: money.

Look at the painting for which one-half million dollars were paid. Its rareness was born through the attributes we speak of; in it these applied with more than usual fineness. Look at the crowds clamoring to hear a great pianist whose pay for a few concerts during the year was \$375,000. Money can sometimes clinch a point. In the painting the tools were but the usual brush and tube. With the pianist it was just a piano. What was it that allowed the conveying of such superexcellences? It was almost entirely through the exquisiteness that may be vested in and carried out through: "Touch" and "Feel" and "Approach."

### III

#### CHAPTER

## THE PAUSE

**T**HE pause, the moment of inertia between spans of effort, is a force that the nothing knows well how to possess. Such state of rest is of value to fine art as it is to life. In the former it may be made to have a variety in and of its effect. It can admirably portend or usher in the further effort.

A transient *absence of light* may be used with telling effect within a light-color play continuity. But it must be carried out in such a way as to be part of the feeling conveyed. It then becomes of a piece with the light

sense. Made in the nick of time it can carry mesmeric force.

The pause is used in fertile result in more than one of the fine arts. It is used in elocution poetry and music, as for example. To hold the attention through the moment of emptiness may be made momentous or it may be vapid. It may be striking or weak. The nothingness of light is blackness. Or rather blackness in light play is the absence of light.

One proof of this fine art is that an *accidental or unmeant* breaking off in

the light continuity of expression is instantly recognized as a disaster to the performance. The expression is then seen and felt as harmed. It is seen that it is wronged, is spoiled. This is not the case when the pause in light is conceived and carried out as part of an intended effect. It is then perceived as part of the meant holding of the attention. It is then a part and parcel of the continuity, done as a piece with the expression as a whole. It will in that case take its place as fitting into the running meaning, as homogeneous to the content.

The technique of carrying out the pause also depends on the hand being in touch or out of touch with the piece of apparatus at precisely the right instant.

The portent of the bit of light silence is, of course, first felt within the performer and then made a part of the general time form. The light score must furnish a distinguishing mark for the pause. The dynamics of recurrent time in light play requires a complete accounting for. The light score must show a marking that covers every moment. There can be no meaningless gaps in the successions governed by time. That is in each composition conceived as a light-play offering.

Such pausing can be of great importance to the beauty of the continuity as a whole. It has its own force in the laying out of values in color and intensity.

As to the possibilities of the pause in music, let me quote the great teacher who taught Mr. Paderewski and most of the well-known pianists of the past generation. In one of his

classes a pupil failed to make such a moment sufficiently dramatic. "Do you know what I would do if, at a concert, the pianist made this point so weakly?" he said. "I would take up a newspaper and read." His ears would not be held. His eyes would wander to other interest.

In light-color playing the eyes would wander also. They would not be held. At such a moment it would be lucky for the artist if a parallel art was holding the attention while his own was unwarrantably interrupted, discontinued, or broken off without "rhyme or reason." The right muscular "touch" and "feel" are needed for properly carrying out the pause also. The intention must launch in a way that the reason of its coming will "click."

After all, what is so often essential in fine art is invisible to the eye. And such is to have it a holding of the attention—that this wander not.

To be rested for a second or so in complete darkness can be made a very lovely experience. Through it one quiets in anticipation of the coming of the particular sort of beauty that color can so well bring, borne on its wings.

At the risk of being put in the category of the woman's club that is said to have spent a whole season on the "comma in literature." I could wax eloquent over the pause in expression. It has in one direction furnished a proof for the deeply scientific in art import. This one is, that not of stress alone is the skeleton of poetry made, nor of meter.\* *Recurrent time conditions the form of verses also.* If not so, how then could a suspension in utterance within the

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\* See my "Pulse in Verbal Rhythm," summer issue of *Poet Lore* for 1906.

poetic feet be recognized as having a part in the verbal pattern? *Where sound is not the form must rest on elapsing time.* Caesuras in the sound do not confound the metrical form.

Scan the following quaint "old folk" tintinabulation:

Niñe are washing the lŷe.

Niñe

Niñe are washing it, niñe are rubbing it.

Prëtty Marion in the shade.

Lët us to the gârden go.

The word "nine," which fills all the second line, occupies the meter made by the six syllables of the first line. Elapsing time fills out where sound is not, and such also throughout the ditty. There is no apparent mark, no visible baton. Yet you and I now know where the invisible guide works and has willy-nilly its say.\*

Nourathar is rather of the glow-worm's art. Specifically, that glow-worm known as the *Luciola Italica*. This is so, since (is it only) *he* (?) makes his inward feelings known through light pulsings not of sound. He has many comrades in his special sense for rhythmic expression, no matter through which medium made. Among these myriads is the wood thrush, that also "understands the value of timed silence, even as though he were a conscious composer." The glowworm *Luciola Italica* shows it knows it also, through the sort of gleanings of its light. These have their time rate. They are used as expressive means.

Whether the appeal is to the eye or to the ear, the sense for beat is common to both members of what we call the animal world. *Of course.* The machinery for the timing suggestion is central to life. It leads to the all of the little or big bodies.

The life-giving flow knocks every so often. It hurtles at the eye periodically. It dashes at the ear simultaneously.

The pause must not be lawless. It also can make logic via the hidden conductor. It is part and parcel of the stream that moves every so often against the skull. The waiting will not only obey this but will also obey any whimsical amplification of the second, or its well-nigh insensible curtailment at the hands of the performer. So the pause adds potency to its wide service in more than one direction.

Whether through light or through any of the other art mediums, there lacks not the central tie to the sum total in the *all*.

The pause in light playing may consist of either a cessation of the light or it may consist in holding an unchanged light value for the time planned. Both may be kept in leash by the warrant of the moment.

The pause can be so used as to lend its subtle proof that nuances, made through the rainbow rays, have also deep reasons underlying their capacity for carrying aesthetic burdens. Obeying that which is common to all, they may be used as a source of communication between man and man. That a pause in the ray play will be recognized as *meant* is one of the many proofs of the art.

Fortunately, it is through practice that this art is now an established fact. A lawyer is known to have once asked in Court hearing: "When are we to know when light-color playing is being practiced?" In answer to this it might have been said that the mere presence of a widespread continuity of colored light is in itself a proof of the origination of



the invention. It even dates it. Since it was the art that brought such continuity not previously existent about. The mere changing of nuance in such continuity is not the basic proof of the novelty now so widely used. Apparatus is required for making such change within the continuity.

If a questioner means "When does the art deliver a message?" A full answer through words would be more difficult. Try and describe music or a painting. By now it will be seen how deep the art dips into the tissues of all life itself. An achievement more shallow might be easier waved aside. The testimony of one, or more than one, of the onlookers carries its unmistakable weight. They have that in common through which an affirmative will be made or rather can be reached. For the interactions that are a part of themselves are also a part of the artist affecting them by the choice in his play. They understand his practice of it through this. The only necessity is to label such of these occurring interdependencies as one may or can. Many of them are now immeasurable.

Conceding the art, the question as to the degree of its excellence or greatness can be allowed to rest with the well-equipped critic. He may be listened to with respect.

Nevertheless, the fact that the fine art of light-color playing is based on measurable qualities held in common by artist and audience alike is the answer to the lawyer's question above mentioned.

Since the pause has brought us to authenticity of the art itself, perhaps we may be allowed to follow this question further here. We might begin by pointing out that there is no poetry in glimmering a light in

order to see where the toothbrush may have happened to lurk. There is poetry to the *Luciola Italica's* glowing something faster, something slower or not at all according to the state of the weather or *its amorous desires*.

Change within an orderly timing is then a distinguishing feature of the art. But the timing is of a certain sort. It cannot be too slow. It cannot be too fast. The attention will not be held under any timing. It is not only then a matter of continuity. The continuity is of a sort. It is of a sort through which only the attention may be held. To interject pictures, as was done in a recent film, can interfere with the exigence of the timing. It interferes with exigencies of space viewed in the light of the wide range of the seeing field of vision. Unless, indeed, *the picture is but incidental* to the light nuance. Then the picture is not the art but an accidental within it.

So then the continuity, the play through a sequence of change, is made to carry a reason. The expression may be due to just an instinctive base. Such instinct as that darkness may suggest progressing degrees within the dusky, the obscure, the mysterious, the tragic, the sombre and gloomy or sad. And that the converse of these may be carried in varying brightnesses. And brightnesses do not in their nature belong to solemnity. An abstract "story" is in such manners unravelled. A light-color idea is in such ways developed.

This can be made to seize on the whole being if the light play end by surrounding the entire field of vision. So even physiology, in the nature of the eyes' seeing scope, enters in, in

this also. Physiology holds, as we have seen, still other proofs as to when a lawyer "may know that light-color playing is being practiced."

And now the point in chief: it is that the art has been proven through the concurring testimony of several concurring witnesses. This has been given in a variety of ways and places, and by literally hordes of people. They have clapped their hands with exhilaration at a timed increase in light brightness. They have gone by the thousands into places of amusement featuring some bit of light-color play.

What is true of the perception of the cruder verities within light-color play performance is also true as to the subtler ideas this may convey.

I was playing the light numbers. These were done as accompaniment to well-known musical compositions played on a pipe organ. I had had multitudinous details to look after in the installing of the Sarabet. I had not had time to develop the technique for all the light interpretations. Some numbers scarcely received attention at all on my part. These I was obliged to allow to go "by the board," as the saying is. A friend of alert aesthetic feelings came to me afterwards. "The light accompaniment to 'Ave Maria' was beautifully done," she said. "When you made the light-play setting to 'The Swan' by Grieg it was not what I would have expected." "I know," I answered, "I had not the time to properly consider this color image properly." Here we have the convincing testimony of more than one witness attesting to the general finding. Recognition not only of the art, but its *degree of excellence* or even its virtuosoship has been made.

This art, of which I write, has not begun to scale the heights of which it is capable. It may be that even the color of the body politic must be changed before its right perception can come about. *There is a will that is not that of the public at large that dominates what shall be allowed to prevail.*

The medium itself holds that which can match the well-nigh impalpable changes embraced within the gamut of feeling. A debate as to this can be met through the physiological, the psychological, the aesthetic and through much else pertaining to life.

Expression through fine art, however, has a flexibility as to what it will spell to this one and what to that one.

There may be those who doubt that change in light values of *atmosphere* can create its own manner of formful representation. The form is there. It is of time. Through the timing, its pausings and proceedings, the audience will know the intentions of the artist at the instrument. Note even that an unexpected, an *illogical* break in the continuity will be realized as a spoiling, a destructive error. It will be so noted as plainly as to start: "How sweet the" and then forget the balance of the line. *The light message is concrete* in a wide range of directions.

The forces of light have been conquered and tamed in the art. At the call of the artist they *will*, they do turn around and do his will. Executed well and with skill the public is, as through music, called out of his burrow. Done badly it will send it hurrying back into a hiding where it may easily will not to see.

To properly utilize the pause, the absence of light within a light-play composition is a tool worth the taking account of.

## IV

CHAPTER

## SHADE PLAY

I WILL call it a shadalion. It sports in shades and rates a medalion. Indeed, the little article of play may by its movement soften or heighten any and every grade of the light. It does not do this by itself alone. It co-operates with the scale. This is the scale that is computed for every shade degree of a light source of given quantity. It adjusts itself as well to superior control of muscles in hand and foot in gaining this or that position. To the subtle powers of movement held by these muscles it lends every assistance. It is roller skate and ice skate both in one. It both moves by a turning over and over and by sliding as well to the points laid out for it on the scale path. Its construction lends every assistance to producing light shades and, of course, color shades flexibly and at will.

It has been said that "nothing in life is so promising or beautiful as a beginning." Let us then properly begin. The Sarabet instrument is complete before one. The console is something more than a yard long, about three feet high and has a depth of about two feet. It is made for being seated thereat. From that point its every playing feature may be reached. The light choirs are away from it but their powers are handled from this console centre also. Please see the cut of the Sarabet console.

How lucky for you that this instrument has been made to spring full fledged from a Minerva's head. It would have been so much more hazardous to the art had it developed little by little, as has been done

by so many other fine art means. It might have had to run up against vicissitudes over ages spanned. There would have had to be a getting re-accustomed to changes. There would have had to be many relearnings. I doubt whether in these times of hurry-flurry any art could have supervened piecemeal in the face of such.

Here it is. Ripe for the playing.

### TECHNIQUE OF POSTURE

Seat yourself in front of this instrument. The chair is high enough to allow all the reach possible to the arms. The feet have the right distance for the pedal push. It may be a help to subtle control to brace the body against the frame entire. Otherwise all the body's muscular systems may be relaxed and alert for action.

### THE OBJECTIVE IN GENERAL

How may one best lay down the objective of the light play in seating one's self at this instrument? This would be speaking, in general, of course. It is done for the playing of something out of you that is worth the expressing. It is engendering a feeling within you and then spreading it all about you through the medium of light rays to the eyes. You then create the parallel of the warm sensibilities within you in the bosom of those seeing the results of your doing. It is up to you to make the experience a priceless one. *For this a certain technique is essential.*

In general, the art is posed or proposed to create a feeling without a special looking as at a special some-

thing. It is to become aware that there is light or there is not light and what the color, and what the feeling. The changing is as though without effort. It is more as one hears or senses regardless of whether one is strained in the looking or hearing.

Fasten the eyes not on any given place or spot as one does in looking at a picture. The result will seep in as the feeling does of dewy morning. It will come as the silence of the first snowfall. It will carry its blessing without a reaching out to get this. Perhaps one can say that it will fall about you as the "gentle rain from heaven blessing him that gives and him that receives."

The gist of the playing is not in causing the result to register on any static point. There are objects to see of course. The art deploys in space as well as time. It is better if the space factors are nice to look upon rather than not. But these are not a part of the aim in chief. The art is in a way moonlight, starlight, daylight, nightlight without their celestial appendages of moons, stars, suns, sunsets and other images within of concrete form alien to the expression.

#### ONCOMING OF DARKNESS, OF BRIGHTNESS

It is as one feels the comfortable warmth of a bath, all about one and one with one. It is a matter of oncoming. It lies in the becomings of darknesses, in the growings to be of brightnesses. It is making all the twilights and starlights and moonlights and morning and noonday lights a part of the intimate CENTRE of being lodged in a human: that which is his own only.

It lies in a general darkening and brightening. It lies in *special* production of ray color, ray shade, ray tint. It lies in the beauty of these latter canopied within that which is all-embracing to the eye. It is of the *values* of all paintings spread out, and used at will. It is not of the paintings' imagery its picture-ings.

#### NOT OF UTILITY

So the art is not of the utility world of everyday life. It must not be absorbed by the purveyors of utility goods. For this art is above these as the stars are above the kitchen sink; valuable as this latter may, in its way, be.

It does not do to call the shadalion a "shoe" or a "slider." It really does not "commute." It provides. It delivers quantities of light as a bridge from the centre of one living being to the centre of that of another. The intermediaries are many degrees through which it does this. They are a chain. And it is an art because it matters much *HOW* it is done. It matters much how the shadalion is caused to move across the scale path.

Closest to the artist seated at the console is the scale. This scale has its extensions for the greater breadths of light quantities, the greater breadths of spaces featured. But first there is the finest detail end of this scale and one of these is closest to the player. There are three such, one back of the other. This first scale is played on and through by hand alone. It is long and is longitudinally placed. Please see the photograph cut. It is through such scales that the shade play is made at its finest, at the point from the absolute of darkness up.

## THE LIGHT QUANTITY TO THIS SCALE

This one scale has been computed for a given lumen capacity. In this instrument and at this time it is that which will light to full brightness one 1500-watt incandescent gas-filled lamp. Each graduation of light to the eye, possible to this light source, has received individual attention. Each has been given its own segment for play. It gives forth the initial lightings from absolute darkness up. It is composed of many wires. Any one of these will accommodate that ohmic capacity which, fed to the lamp filament, will cause it to heat to just that degree of increased visibility to the human eye. Each of such heatings will cause the lamp to glow to that brightness perceptible as a least addition to seeing still another step, in the heightening or decreasing of its light. There are two hundred and sixty-seven (267) of these in the one 1500-watt quantity. Two hundred and sixty-seven lightings within the white or any color and colors intermixed. And this limit is for the one detail scale only. Of these there are three on the present instrument and beyond these are the cruder scale adjuncts that may play with any amount of light whatsoever.

## THE SCALE PATH

Each wire goes to a copper contact block ranged along the detail scale paths. These blocks are of necessity narrow. On a scale unrestricted for any reason, each is but one eleven hundredths of an inch wide. The individual scale is, therefore as a whole, not far from a yard long. The reach of the arm will cover it. It is on this path that the shadalion

moves. It is according as to how you move it what the result will be on your audience. What you do may be the embodiment of beautiful thought in sensuous form. Or it may not. Knowledge of its technique allows the artistic mastery.

It depends much on what you wish your brightening or your darkening to convey. Should this be in accompaniment to a parallel art, your hitting the centres of perception through these will be easier.

## THE WAY TO THE RESULT

There are now three of these scales and beyond them other additional enlargements of their individual degrees. With the playing unit, the shadalion, to the extreme left, the light source it operates is at complete blackness. Its actuator may then be moved to energize it. The current will then flow. Moving the shadalion from left to right across the copper contact blocks will cause the light to glow with a brightness integration, increased degree by degree. The motion reversed—that from right to left—decreases the light similarly.

## TECHNIQUE OF SCALE PLAY

It will not do to *feel after* a certain degree of light intensity. Your yea must be yea and your nay nay without experimentation. Uncertainty is as bad as it is for a singer to “reach up or down” to the centre of a note he or she is about to sound. It is like hitting off pitch and attempting to remedy the harm. Such is disagreeable. The ear disapproves. It is an ugly sloppiness. The eye also will not like getting a particular intensity by experiment. So the positions possible along the scale path must be

well known in advance without guess. There must be no overreaching. There must be no underreaching. The divisions of the scale extension into arcs or zones, as these have been described, will help greatly. These on the scale cover will make unnecessary seeing the path itself as one plays.

#### THE INTERACTING TIME FACTOR

The beat moment interacts with the motion made. The brightness degrees may be, to be sure, cumulated. Not every progressing degree needs always a progressing moment. The exact amount of the more light, the less light is apportioned subject to the time moment at which it is wanted. This is conditioned by the content your art is carrying. The exact beat moment may be missed for its particular light feel designed, if you are not careful. Knowledge through practice is a necessity.

With nine divisions to the scale marked off and nine degrees to each division, it will be easy for the eye of play to keep easy track of where it is and where it wishes to go.

It may also be that there will be several apparatus moves to be made within the fugitive play in time. New colors may have to be introduced, other light sources set in play. A right getting in touch with the piece or pieces governing such additional factors must be managed without letting go of the thread of the spectral discourse. It has been said somewhere that at night "the stars sing together." In this the colors and all their handmaidens celebrate *the wonders that are YOU*.

There are broad characteristics to the play. There are narrow ones. The detail may be meticulous. The

face of the light curve, making its graph, may be big and broad. The throbbing beats are there nonetheless. It is as the heart continues to throb, though wars wage and others die. But here, in this matter of expression by light play, the heart continues while others are stimulated to live.

The eye unconsciously sees or notes over a wide span all at once. This conditions the breadth in the space featured. Whether broad or narrow, the result must be unfused to the eye's fettering.

#### SIMULTANEOUS HANDLING

The technique of play will call for the simultaneous handling of more than one of the distinct parts of the instrument for creating degree of darkness and brightness. It is fortunate that there are two hands, two feet with which to do this. After the fine scales come the cruder ones. After these comes the means for controlling the wholesale lighting throughout the house. It will be remembered that this cumulation fits with the lessened response of the eye, from its at rest state towards the more it is asked to see.

The increase of the spread of the light up to the larger spaces of the auditorium have their playing means at the console also. This includes increase in the brightness throughout the space. *All this that is now being spoken of is irrespective of the color.* We are referring in this chapter only to the black and white of light. This is the monochromatic range in the all of the light. It is the monochromatic of the light not split up or refracted into its component color phases. Its use carries into the color similarly.

We have noted how potent is the brightness spread and increase when it is caused, through its own apparatus, to surround the entire field of vision. The color, also, may be made a part of this light crescendo in perhaps both: the increased space, the increased intensity.

#### THE WHITE OF THE LIGHT

The white of the light is larger than its individual colors. It is the sum total of all its colors. When we speak of the darkness and brightness as to the whole, that the eyes can see, we are mantling the space as only the white of the light can mantle. This may be done in the white of the light without thought of the "jewel the frog holds in its head"—without thought of the color. Even in this, the black and white of the light there can be the other jewels, the jewels of concept.

There is then a dual bigness that is played with. They do not clash. In one way they lead one into the other. They may, indeed, act hand in hand. One is that of just the usual darkness and brightness. It is of the white of the light. It belongs to what is before us in the constant use of light by the eyes in everyday life. The other is its diadem—is its color. Both have their speaking parts in the fine art.

Sniff not at the expressive power of darkness and brightness in the white alone. We have seen that this has helped the fame of many an artist in several walks of stage life. No less. It has lifted the feelings of his auditors towards the conductor of music. And this at the crucial moment, at the climactic ending of his overture. It has had its part in adding to the fame of many a vaudeville act. The brightening of the light at these cli-

mactic moments added its egging on to a louder clapping for showing delight. This is a proof positive of the art. The light gave incentive shown even in the muscular action of the hands.

The light became an excitant. It had its own redound effect on the flesh and blood of their hearts. There was a return by way of consequence. The reaction worked to the performer's benefit. He was not slow to appropriate it. It was, nevertheless, due in large part to the strengthened impulses of the life-dealing heart action. This is but one sample. It takes in all the light had to give at a particular moment or moments. There is any number of values that can be used for feeling this side of the light's apogee. There was a content of thought and feeling even in so small a sample as the climactic one. There can be thought and feeling imbued into any shading of light.

#### "TOUCH" AND "FEEL"

Throughout this muscle-on-apparatus, even as to the shadalon, there is the technique of "touch" and "feel." Indeed the fineness, with which this kind of sensing is made apparent through the instrument of play, may well proclaim the general condition of the artist's body as a whole. This fineness of timing, as by a breath's difference, is not excluded by the slowness of seeing of the human eye.

But unlike the ear, the eye is sedate. It is of a heavenly repose. The hours of practice by violin or piano are not required here.

It is I a taming of light to do as one wills, when one wills. It then follows where led. It turns around and rewards with compounded interest the devotion to the possibilities inherent within it.

# V

CHAPTER

## RAY COLOR MAKING

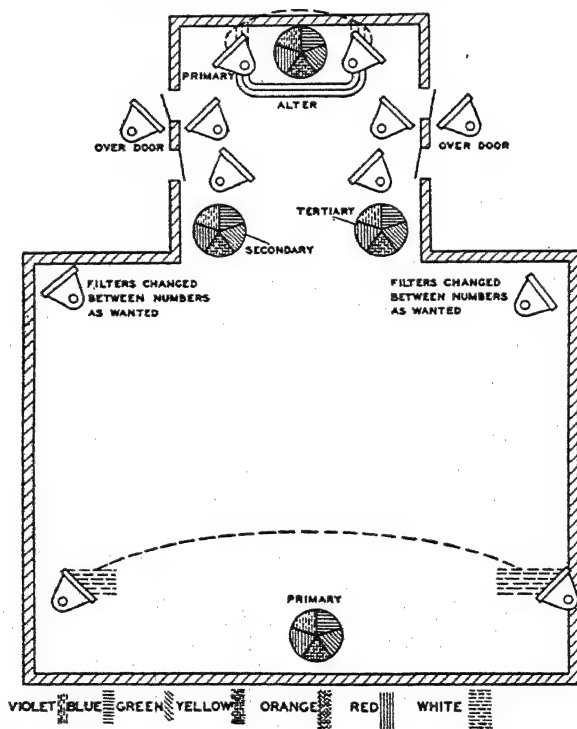
**TO MAKE** color. To cause it to re-become in all its pre-Creation purity. This is one way, one direction of shelving all the dirty, the unclean, the dingy intricacy that has developed, hand in hand, with man's evolution. These rays in their original state have no imperfection. They are complete, without defect or lack. Indeed, they may repaint the dulled sharpnesses of health in their per-

meations of the human body through its tissues.

They are, as you reproduce them, through this instrument of play, the apotheosis of all color as we generally see this. It is its very self, unalloyed, unbuffeted about by the uncertainties of re-reflecting, refracting fate and accident. *There is a joy in playing with it.*

The color manifestations of which

MAPPING OF THE LAMP POSITIONS AND LIGHT  
COLORS OF FILTERS AT A SMALL CHAPEL

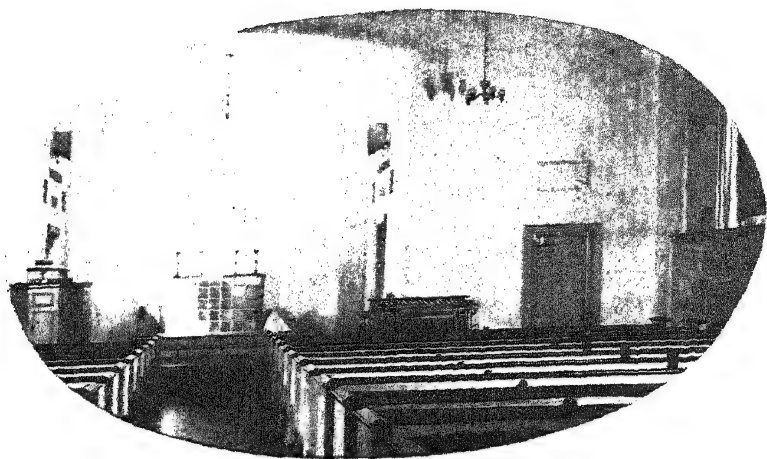


PLAN SHOWING LAMP POSITIONS FOR A SMALL AUDITORIUM WITH  
LITTLE ELECTRIC POWER AVAILABLE





MARY HALLOCK GREENEWALT AS A DISTINGUISHED ORIGINAL  
RESEARCH SCIENTIST AND INCIDENTALLY SUFFRAGIST



FOR JEWELLING THE LORD'S PRAYER

I speak have their characters determined (within the instrumental means) by the filter. You do not produce them in the same sense that a violinist makes his tones. And yet a certain parallel exists between shortening or lengthening the vibrating catgut and modifying for this particular use the results gotten out of the right transparent dye. For though the true primary color transmitted through the filter be but one, it has a great number of differing faces or phases for choice. It can be deepened. It can be heightened. It can be darkened. It can be brightened. It has shade. It has tint. *It has a capacity to make other colors not the same.* This manipulation is of the instrument and the artist. It requires its own sort of technique. It is a technique nonetheless exacting.

Mark you, as you con the matter over, how many are the color differences and showings that may be held between even the smothered violet or indeed blue of a cloud suspended in a before sunrise sky and the livelier smouldering purple of the eggplant. Indeed, I do not know how better to remind you of the infinitude of the variety, or how better to suggest them. Draw all the lines possible from a cloud to the individual vegetable and these lines might not exceed in number the possible showings. And, practically, all of these are within the instrument's scope.

A red need not be a tiresome one. It may glow like a torch of scarlet flame. It may be ardent, near onto the golden or the pinks or scarlets. It can blush with passion or "frighten a bull." It may show all the shades of cumulus cloud touched faintly by the fingers of dawn. Even white can

gleam like a bride in satin. "Ask me not to tell in joyful numbers."

It is well to remember the infinite changings held in color in rating the truth as to what I have written and would write.

It is also so, that I am about to describe the technical details of play for arriving at this "ringing of the changes" through an instrument whose particular meticulous form is not yet widely manufactured nor installed. It is, indeed, fortunate for the art that I can refer you to the accompanying cuts and photographs. For even for the would-be pre-empters of an origination position, not theirs, it is sad that they realized not that it is the absolute of darkness and minimums of light that are the starting points. That these are all important ones in the play. It is there, that is created the indispensables to the infinitudes.

An outward instrumental shape for embodiment of facts must be there. There are now some such bases in constant and wide use. These are but crude variations of this one shown here. Results of play on and through them are seen literally by millions of people. I am in duty bound now to ground a skillful setting forth of the needed technique through the instrument *fully worthy of the effort taken.* Indeed, there should be a consciousness as to such technique in handling any of the instruments played for color results. The deficiencies will all the better be realized.

After all, much has become known and is used. There is no stretch for imagination to span the crude into the fine. There can then be no excuse for keeping the public in a darkness for which light is an essential.

Moreover, my patents have long been in force. They are constantly being cited against would-be inventions. They are well known. Basically, all such sorts of apparatus, now in use, have been bred by this labor, are a part of it. What is written here, therefore, refers to them as well as to further paths these should be made to take. Or as to the means that should transmogrify them, or see them thrown out altogether.

Much that I have written can be applied to technical attainment through any sort of appliance looking to the ends of light-color playing, as well as this, the Sarabet. Readers will note this. Others will be made wise as to the real and the true as opposed to the quasi-bogus. So we will tackle the subject knowing well its universalities.

Granted that all the necessary technical attainment and knowledge has gone into the filtering medium, and that this has been properly placed in front of its light source. The artist must, in this art, then handle the result in the various ways his *feelings* suggest or require.

In the *manner* of causing the light rays to go through the filters, among which lies choice as to their quantity and their quantities intermined, lies the heart of their use. Many ravishing surprises will greet the artist playing with and through them. Many of these, indeed most of them, will at first come to sight accidentally. I have gotten a rare shade of color by slant of ray from a distance brought to bear on those commingling close at hand. It is a captivating occupation. It yields much that can transport with delight—that can enrapture, charm and delight. And this, irrespective of the all-hallowed

meaning they may be made to convey. It is a world different, separate and distinct from that arrived at via dyes, or other indirect showings.

Moreover, they may be made to impinge on the surfaces with a *meaning* and *intent* designed, from there winging their purpose to the waiting eyes. From these to the inner worlds, within the bodies of those seated in expectation within the marvel beauty.

There are six true primary colors. For producing these, initially there are in this instrument six actuators, one for each color and but one scale path allowable for use with them. Only one of these, *as the unit is at the moment constituted*, may be played on the scale at a time.

It is a help to the memory to label the actuators. This may be done through pieces of colored celluloid or paper. Such may be placed either on the actuators themselves or on the console top proper. But even if this is done, a *hand memory* as to which one you want to move helps the instant action. There will often be action needed more promptly than one can think and then transmit to the waiting muscles.

The labelling, as a whole, may go (1) according to the color, (2) the position of the light source, and (3) whether this source is equipped with a plural color mechanism or no. In the event of the plural color mechanism being in use, still other colors may, of course, be handled through the one scale. I am now speaking of the detail, the finer end of color, at the very starting of its scale. This is from the least point in space and the minimum quanta for the visibility at such tapering spot.

There are three positions to each

actuator. In the playing, these positions are offset by handling the shadalion that moves across the scale path *belonging to this bank of six*. This moving of the shadalion produces the shades. There are four essential or first things to keep in mind then in moving any actuator; they are the three positions together with the right shadalion (the one belonging to them individually) for movement.

In the matter of color, any result possible to the single or one bank of actuators may be mixed together. This is done by successive use of the one scale path. When the scale is freed of the one color through being put in a state independent of the scale or "on the line" by motion of the actuator, the scale is ready for bringing up another color *against it*. The shadalion, after the particular lamp has been put "on the line," had best be brought back to the extreme left before bringing a further color up against the existing showing.

Memory of mind and muscle is a factor. If the player is not well aware which of the pieces of appliance are co-operating, embarrassing moments can transpire. To try to play a color quantity on its scale while its particular actuator is in the "no erg," or no connection position, would mean that that movement of the shadalion yielded no result. This could be in the highest degree embarrassing both to the artist and his aim.

The instrumental provisions for getting well nigh any spectral shade or tint are very great in number. The results to be attained are, if possible, far larger than the effort required to bring them into being.

I can but suggest, in general, that

which must be kept in mind. There are twenty-two actuators and three scale paths. For this important part of the instrument, *the initial or finest end of scaling color*, there are not a few things to be kept in mind for successful play. There are bound to be many such parts to any light-color play console. Indeed, those now in existence may well be placed as a crude addition for scale extension to this particular form of which I, in the particular, am writing. This can be, in a manner of speaking adjuncts to it, handling the gross to its fine.

Let us but consider the one set of actuators and one scale path. Such example may stand for the other two sets and two scale paths also. I am in duty bound to remind you that any fine mixing of color, for the emotional result sought, demands this form of the Sarabet. It needs parts capable of meeting the supreme capacity of the human eye for noting the finest particulars, the least increments of visibility. To cater to it as though it were a dish rag will not do.

Let us, as for example, consider that your play is first to be made through the true primary blue rays. With the shadalion of the nearest scale unit at the extreme left of the scale path, you move the actuator governing the true blue to that position which will close the current circuit: from thence the energy goes to scale—to the lamp filament back of that particular filter—and so back to the scale steps wanted by the play.

The circuit is completed as said. As the shadalion is moved, from segment to segment of the scale path, every degree of color shade possible to that blue may be played on. You

now may want that blue on your reflecting ground to stay static up to the full ray capacity of that particular light source. You may need no further modification of it. The shadalion is then at the extreme right of the scale. The light source featuring this blue is through motion of the actuator then put "on the line." The scale is now free from any traversing current. The shadalion is again moved to the extreme left. The actuator governing the true primary green filter is moved to put the current in circuit with the light source back of the true primary green filter. As the shadalion is moved towards the right, the true blue on your field will be gradually modified by every degree of shade possible to the true primary green, held in the stated light quantity unit.

Here is where the technique of play will come in. At just what celestial moment of the greening blue will you need to stop? At just what rhythmic stress will the combined shade be of just the right aesthetic telling? There is much choice to command. You have before you a single series of two hundred and sixty-seven scale-path units. After exhausting the combinations possible in the above way to the one scale, the artist can interact with two hundred and sixty-seven of a *second series* of units for color variety and still a *third*. According to the degree of subtlety to your play, any one of these combinations may be needed. They will not always be used in all their possible subtleties. But they are there for the use.

Two hundred and sixty-seven times two hundred and sixty-seven would not cover them all. By courtesy of the one bank of actuators delegated

to the six true primary colors, any of these may similarly be intercombined; and to any shade degree possible to them. There are besides two other groups of such actuators and further scale paths and scales. So the numerical is further capable of the multiplying over and over again. It is fortunate that as to color itself some combinations will but result in duplication.

All this mentoring by degrees of shade will be there but some may not be practically noticeable. Time will tell. *Much depends on the surfaces used.* The finest eye will have its testimony. In my experience they all register, given the required conditions.

The above sample will denote the manner of co-ordination of pieces of the appliances with that of another in this initial point of color effect.

In this color making the technique of muscular "touch" and "feel" and "approach" and "control" will, of course, obtain. It will obtain with an unbelievable mastery. Memory will play a part. The reach may become automatic. Which lamp? Which filter? Which actuator? Which of its positions? And then, which is the combination with scale? And what the timing? Remember this technique is no circumstance as to the practice needed by the pianist, the violinist, this they have to go through with, and so, indeed, as any instrumentalist of the timed fine arts. But it does result in all the colors of all painting, joined to all the timings used in all rhythmic activities. The interplay is as lovely as it is surpassing great.

In the above way the capacity of any one set of actuators, together with the particular scale delegated

to them, may be cumulated or subtracted. And then, these interplayed with the further sets and their scales. They may be put into play or left out altogether. Image to yourself the subtlest color shades and tints you have ever seen. The *root* of the changes made in them will exceed them all.

In this capacity for successive duty, one scale can accomplish that which otherwise would call for a number of these. And this procedure is necessary where conscience as to the extent of color variety exists. And there, where combining of color is footless, breeding no result more directly and otherwise to be had.

A full color, as groundwork, can materially enrich the color shades of still another color played against it. The finer the nature of a color, such as blue for example, the subtler enricher it is of a further color superimposed upon it. The result may be quite that to make an audience gasp with delight.

The extension of these, the initial scales, into their larger complements for ampler degrees, ampler space, must not be forgotten. It must be kept in mind when realizing the complete extent of the largeness.

From actual experience much may be done with but one scale unit with plural actuators and plural lamp sources. My very first light-color play console instrument consisted of but the one mounted scale unit. It, also, had the capacity for choice as to more than one color used on and through it.

The very first scale panel was practically made by hand. Wires wound over a cement base constituted it. In itself, this will prove what zeal and determination can

accomplish. There was, also, the change in the color filter before the one source. With but one lamp head equipped, however, with changing color filters, a not inconsiderable effect or cumulation of effect in the result was obtained. This was publicly demonstrated in 1919.

A scale unit, constructed through a slate base by use of the very same figures, was demonstrated semi-privately in the basement of a large theatre in New York around 1922. It was also shown in the auditorium of a large and well-known department store in that city. This particular instrument is still in existence. It is housed in one of the best known institutes that cares for historic valuables.

There are those who will want to make representation that such meticulous color shading, color splitting of hairs, is much of it unnecessary, that it is negligible. By actual demonstration that is not the case. Every one of these tells and has need. But the interior must be entirely dark and the background surfaces prepared in such way as to be completely reflective. Under these circumstances the shades of darker, brighter will produce their loveliest in purity and subtlety on the silvered ground. None will be lost. All will be perceived by that supreme organ, the human eye.

The color is that at its first, its purest source. It is the true spectral ray. It is unimpaired, unvitiated. Perfectly reflected, it is *the* color ray.

As to the capacities of the human eye—geared just to use of pigment in painting—one painter said to another in my hearing: "How many shades can you see in the rounding edge of this table board?" It was

the usual fine edge of the cut side. "I can see fourteen," was the answer. And yet, a CRUDE LIGHT-color play instrument will cut out practically every bit of shade and tint play. How foolish to use such a one when a painter's eye will see so many in but one fine edge of a dull grey or brown board.

The color provision is further increased by the plural color change in front of the one and self-same lamp. Indeed, this arrangement may change the "on the line" color to another *without interference of scale or actuator*. Or, it may change a color being played on the scale to another at *self-same intensity*.

The intensity degrees are like a chain, the links of which, may be used separately or imperceptibly cumulated or lessened by decumulation. It will be remembered that the full intensity true primary colors are also represented by the mixing of these through the filter dye itself in combination with their color-scale neighbors. This was done and called by name of "secondary" and "tertiary" combination. The filters that can deliver these, also, are provided by the instrumental means.

To arrive at the well-nigh infinite variety possible to the play there are in recapitulation three detail scale units and twenty-two actuators. Eight actuators connect with the scale nearest the player. Six to the next and eight again to the third. The scales are longitudinally placed one behind the other. The second and third scales may be played either by hands or feet. The wattage quantity of fifteen hundred watts to a unit may be used as sixty-six lamp

quantities of five hundred watts each—or a total of thirty-three thousand watts.

Besides these, and additionally to them, there is the illumination by cruder degrees and then the availability in wholesale of the house lighting entire. These may have color capacity added to them to the very limit of their brightness power. This has been done more or less, or rather attempted, in many large houses of entertainment. It has been labelled: three color!!? lighting.

By the means provided of three scale paths, any three single colors may be increased or decreased simultaneously. The lamp color quantity may be divorced from its scale and brought to it again. Colors may be used as chief actors or but as basic enrichers of the color played. Against these, not being at the moment expressed through, the light in mobile play can move to variously make changes on their static or stationary charm.

There is, then, the capacity for mixing color degree with color degree or in the plural as colors degree with colors degree. It is a many times multiplication of two hundred and sixty-seven with two hundred and sixty-seven. Without counting the cruder cumulation as *adjunct to the initial*, the chief end or beginning of the scale.

Not only the infinite variety is there. These have been put here on such defined, accountable base that the mark on paper can be a true guide to their exact reproduction. And this is so whether use of color be fraught with timed expression or not. Or used simply in merchandising.



## CHOICE AS TO POSITION OF THE LAMP WITH ITS COLOR

The positioning of the lamps played has its importance in the color result. The direction from which the color is to come is also of moment to the expression made. Certain rays coming in slant can add much to the charm in the play.

There is comfort in number. The exact, the mathematical is a pillow to the head. I have provided a guiding thread within a labyrinth. It is unwise not to foster every kernel of truth herein detailed.

That, as above suggested, is the way to "even speak" of making color. It is no way to go around to the corner store and buy haphazard a filter of some one of color's multitudinous shades. The audience, of course, gets sick of seeing the same crudeness come around, over and over again. And, moreover, without much rhyme or reason.

Filter changing is a labor. The best that the purveyors of dyed sheets can do is a pitifully small fragment of all that the spectral ray hides in variousness.

This is the way to color shade, color tint. It would be a strange painter who had to purchase a tube of pigment of every kind of color he needs. What use would his black and white be in the infinite discriminations possible to them. He equips his box with some of the basic color needs and creates the rest. And, at that, see what the great masters have accomplished.

By the console described is the way to make rainbow rays in all shade and tint, extension and direction *at the moment*, on the moment. Leave

alone response within the infinity of feeling.

A chief point is that the consoles already perpetrated, here and there, suggested by the one being described, may be considered as but the accessory tail end of the scale story. They may, indeed, be used as an adjunct to the above instrument of play proper as described. And though perpetrated by those whose knowledge and training entitled them not to enter the field, what they managed to glean still fits as of a possible attendant addition to what has been described of an incidental quasi and part usefulness. Even these spurious apparatus performances, together with their performers, may profit by the councils herein given. In other words, they seized my animal by its tail. And now the head will turn around to bite, if they are not careful, as is fitting and deserved.

So, we have made a minuscule nibble at the color—all by just a suggestion of it. We have done it by stressing parts of the organ of play. We have done it through such words as "crimson," "scarlet," "red blushing with passion—on the golden, towards the pinks." And any point of the amazing color phantasmagoria may each individually be played on, pont, by point, towards the brighter, nearer the darker on the scale of least visible increments which I have in past chapters so carefully described.

And by all these many tokens may a *smouldering feeling*, yea, a *smothered one*, be miraculously expressed. And, moreover, with its very own raiment of splendor and beauty to the moment nicely timed.

# VI

## CHAPTER

# RAY TINT MAKING

**T**INT is not always the tintinnulation of a color; true, pure and singing. Under the vicissitudes that color mixed with white meets in daily life it is often, to say the least, dubious and uncertain. It may be doubtful, unassured, uncertain, untrue, vague, impure, obscure, precarious, turbid and even muddy. Call your best friend these names and see what might happen. T.N.T. of sorts might be the result. It is rare that one gets a clear tinkling of paling hue in the daily dishings up of color. Resolving light rays into diluted qualities of themselves is a different matter.

*Ray tint itself is always true.* En route to the eyes, it may become distorted from a genuineness. The sort of surface, of medium it strikes conditions it. Gotten as it is by diluting the full intensity color with the white of the light, it has its own field of great charm and power.

Tint is the color rays thinned into lesser number of their color selves by interposition of white rays within their number in greater or less quantity. These may also get less thick and so fainter or paler through the greater divergence of ray from ray according to the greater or lesser distance the light travels before striking the surface that makes it apparent to the eyes. Or, as has been said, it may be arrived at through dilution by the white of the light. The two conditions are not precisely synonymous. They may both be used as Nourathar means. Either through distance or applying full light to them.

Shades, as has been pointed out, are gotten through reducing the full intensity color rays, towards the darkened side of the light.

The technique of play through tint of light is a separate and distinct matter from play through shade of light, although tint may also be applied to shade. There is still the third role; that of playing with the full intensity color apart from either its shade or tint.

In making ray music the values color functionings become more than usually plain. This is natural since the first, the root of color, gives the breadth that allows finer distinguishments. There is very great beauty to be gotten through the extra definiteness that light-color play allows in all three directions: full intensity, shade and tint.

Indeed, nothing can make these three in their divergencies of color so plain as dealing with them through light itself. In a way, it has taken Nourathar to bring them out properly. Their world is broadened, is made effective in a way only playing with them brings out.

The sun's rays do come from such a distance. The intensity is weakened by the remoteness of the source. The clouds, turgid matter over mediums receive them before they are seen as reflected from these. The distance of the source and the indirect reception both may effect their worst. These accidentals of nature, art may improve upon. It does improve upon them. Notably does it do this in the field of playing

with the spectral ray as this art only puts it.

Nourathar is, like all fine art, artificial. This is true. But in such way it may even help or go beyond nature. In the practice of this art surfaces are furnished that reverberate the rays pretty nearly, if not entirely, in all their trueness of ring. The indirect transmission does not spoil the light's initial beauty of character and power.

Of the two ways suggested for making light-color tint, the one arrived at through scaling the color by addition of white is by far the most important to this art.

Hitch a white light to your shadalion. It is of the same wattage as the color-carrying lamps. Play its two hundred and sixty-seven gradations against another lamp's full color quantity. It is a color quantity stationary, let us say, across a surface. The shadalion can then be well called a tintalion. For as it is moved, degree by degree, the color is, degree by degree, turned into its varying tints. Its color is diluted by the added white of light. But it is thinned with a mathematically computed certainty and accuracy. Through this, even tint can have its definite marking on a light score, and its own technique of play.

Unsaturation ray color by ray white is a very valuable help in making light-color play expression. It is a gradual leading towards the brighter or brighter contained in the full white. It lends subtlety of still another sort. It creates still another element in the technique of attainment. Tints have qualities that are not provided by other color means.

There are two actuators preceding the bank of six on the console that

may well be delegated to the white, available for this tint's detailed use. There are two placed after the second bank of six that may be devoted to tint tasks similarly. These four were added in part for white or for any unforeseen need. This is speaking for only the meticulous, the finest end of color ray mixing.

So tint, through play on white, may be darker, may be brighter as the tintalion is moved towards the right or left.

It is simpler to speak through these rays direct. I have had many surprising and delightful moments in the prosecuting of this labor. None were more so than the realization that I could make also the rarer hues. That I could make the bit more purple-brown shown by this leaf in autumn, the yellow-grey of that one, as well as the bolder ones in yellow and red. Light-color play yields more than that so indirectly gotten. Even little practice on the apparatus makes plain the infinite variety. You may get what you want by a quite accidental glancing of the shaft of light coming from some distance across the units in closer play. No matter how it is there for the finding.

The flexible muscle, the diligent eye will be needed to *bedew*, *soothe* and *refresh* with the charms that are of tint. Indeed, it is like yielding dew that the action must be. The pieces of apparatus, their location, and the result to be obtained through them individually and in combination must be consciously and semi-consciously kept in mind. The "nick of time," the mesmeric is of the factors. The right "approach," "touch" and "feel" count. The results may strike at the very centre of one's life.

In handling the wholesale end of

the light the initial detail is engulfed. This is a help and not a hindrance in the climatic moments of the play.

The rays of the one lamp will spread according to its distance from the space on which its rays strike. Place a lamp-head unit at the back of the hall and its rays will cover the entire front of the interior. *But the color intensity will be less.* And this will be so even though the surface is of neutral guise and perfectly reflecting. The rays begin their ever-widening spread from the point of their leaving the light source. The color gets proportionately diluted according to the distance. Let us not say weakened—rather *charmed into tint*. This helps the wide and all-embracing coverage often needed. Arrangements may be made for narrowing the lamp opening, it may be through lens by remote control. This adjunct may be connived at to play in more or less sharply for the kind of color need. The light artist has much to choose from. With the instrument before him but a touch will do it, and consideration.

The color from the lamp placed closer by will be stronger than the same color impinging from a lamp placed further away. Since it is plain that no two lamps may occupy the same space there will be choice between intensity and relative distance.

It is plain that the form and extension of the auditorium space has its say. In the matter of the color being reverberated back and forth the space surfaces interplay with each other. This can be very lovely.

Very lovely and quite extraordinary effects are realized in this indirect way.

The focal centre to the front plays

up the intense, the concentrated and that which is of less needed scope, but of perhaps greater speaking capacity. The spacial surfaces, as a whole, count and, as I said, these count in the interplay of surface reverberation with surface reverberation.

Objects within this general space are no hindrance. They may, indeed, lend much to the charm of the whole. The unity and its intention are outside these. It need in no sense be marred by them.

The rays once launched from their various points will cause the volume of light to strike where and how they should as the fugitive bit of time calls for. And all this is under the control of the artist at the instrument. The aim is guiding the play as needed to the eyes, and through the eyes to the understanding. From there to the innermost of the human body. They illumine the point of view of the moment's intention as it is carried out in practice through the instrument, that happens to be but as a small table or desk before one.

Just a suggestion, just a scrimp-tion of what you will get is carried by one or two namings. They will start the edge of your imagination into a sharpening. These are but samples of seven thousand such names that have been tabulated and put into a dictionary. Well then: ivory, jacinth, jasper, amber, amaranth and cinnebar—lune-green and white as frost. Even white is of a variety.

Not seven times seven thousand will exhaust the charm and its infinite variety.

## VII

CHAPTER

## SPLITTING THE RAYS

**S**PLITTING the rays is rather more of a picturesque phrase than a true one. It is probably as honestly used here as "splitting the atom" has been. This may be a good moment to make a bit of remonstrance at the talent, widely practiced in certain quarters, of drawing the attention of the rank and file of people in the above cheaply clever manner, to some achievement or other, supposedly difficult to understand. The expedient is turned to account where it is supposed that the right technical phraseology would be caviar to the public. The "sellers" of the idea novelty or notion, that would not otherwise be noted, is then done through just such combinations of words, more arresting of the attention than true.

In using the above phrase, "splitting the rays," I agree to erring similarly. For the rays are not really split. They are but made to show themselves in quasi-contiguous position one to the other, rather than smoothly merged. This adds brilliance to the manifestations, even as cut of diamond does it.

Should two colors, each launched from a separate light source, be reflected back from a comparatively speaking smooth surface, their natures or their results will combine and merge. The upshot will be one composite smooth color. Direct them at a surface more like that of cut glass or finer angled crystals and the result will be a scintillation of the rays' colors. There is then a separation of their respective identities, though seen at once. This gives the

result a bite, a pungency, beautiful as well as helpful to the play.

The color's rays will then come back in a juxtaposed relation. And such relation will follow the crystal-line fronts or angles. They will be seen in a one-ness of effect but more brilliant and diverse. They will gain a sparkle. They will be given a tremulous flashing or twinkling. The cut diamond and other cut precious stones are familiar examples of this. The fact has its value in this art. This expedient will brighten even a one color thrown across and reflected by a facettted surface.

The effect through such cut surface will be increased by play of more than one color on to it. This will give an intensification, a multiplication.

Such circumstance is not restricted to any particular number of the colors. Any number of these will come to the eyes as juxtaposed. There may be two or more of these. There is choice to be exercised, of course, as to their kind and number. Indeed, just the white of the light may be refracted into showing colors similarly. This will need special attention, although any irregularity in the surface will give even the white a certain scintillation.

Let us err again, on the side of striking a perhaps irregular imagery, by saying that the colors will come to you as minute daggers of jewel sharpness. In the play they will be pointed sharply at the very centers where you feel beauty. They can show an unexampled brilliance, where a stupidity of color may not furnish the needed note or message.

I have often thought that studies in the art of purveying light color can do much to help the painter of canvases. The landscapist, the portraitist may profit. The surfaces he is reproducing through his palette of pigment tubes are rarely entirely smooth. Looking sharply he will see that circumstances naturally divide color that seems united. It is a help to making his subject re-live vividly on his sheet. Indeed, I cannot help but feel that the coming of Nourathar has had quite a full share in adding some leaven to the painter's art. This has been done through the subject, through the telling in the picture as a whole, as well as a suggesting in kind of technique. Where the subject is suggested by abstract honoring of light, it will be easy for the technique to follow the form.

Here we come again to unity of effect. How in this diversity is the one-ness in the emotional result? Again it is because of the power, the root, the singleness that is made through the all-mentoring darknesses and brightnesses. These are such that they affect the all in company one with the other. They make a unity of degree effect out of the diversity.

The grade of darkness will impress its lowered character *on the multiple* of the showings as a whole. Brightnesses will raise this. It is not to be forgotten that the true full intensity colors are few. It is their shades and tints that offer the range so wide. In light-color play, shade is darkness, tint is brightnesses of the light quantities to the eyes. The wide range of darknesses in general, and of brightness gives a wide gamut to playing with the many as one. These make a many numbered unity out of

the many, no matter how or where these are deployed. It is through these that you see more of what is, or less of the same, be this an emotion or a thing.

This unity in the value results also when two different colors are used at spaces apart. That is, of course, when both are subjected to the same values of darkness or brightness intensities.

And here we come again to some of the interior wall preparations of use to the mansion where jewelled feelings may home. Keep well in mind in connection with this, the plaster surfacing roughened just enough, not too much so, and not so in its help to "splitting the rays."

In harking back to this subsurfacing, behaving like unto a diamond, it is well to be reminded again of the surfacing. Light color, also, as your dress or suit that needs to go to the dry cleaners, may be of devious sorts. Dust, other matter out of place, can make it look dirty, untrue, uncertain. Many of these unpretty qualities light can also get from that with which it makes contact. It is very true that the surfaces are of paramount importance to seeing this art in its right perspectives. Even the right surfacing should be kept clean.

Glass, either natural or artificial, may be of considerable help as part of the general foil. Glass blocks, rods, cut or rounded, even furnishings may now be gotten made of this translucent reflective, refractive material. Care must be exercised since in this, too, there is choice as to the better or best. The piece of irregular ice, the snow crystal singly or in landscape sheets, the dewdrop—these are parallel states.

# VIII

CHAPTER

## PEDAL TECHNIQUE

STRANGELY enough, the comparatively simple mechanics entailed in the foot pedals action, a part of the Sarabet instrument, has given me unexpected trouble. This, I think, is rather due to the limitations of the foot itself rather than to the all-hallowed "incline plane" and "shortest distance between two points . . ." Much may still be done to make this part of the playing whole nearer that which it should be. I, here frankly and in an unreserved candor, ask any reader, with a talent for wheel and pulley, lever and wedge, to give the matter a little thought.

In spite of the beautiful foot of Trilby, it is hard to wax enthusiastic over the pedal extremities of the body. At best their purpose is distinctly but one of balance. It is that of holding the body in an upright position, no matter how worlds turn and stars move. However, I have more than once been fascinated by the facile and flexible travel of an organist's foot along and among the pedal notes of a pipe organ. There is something to be said for a ballet dancer's ankles also.

For light-color playing there is no foot agility needed. It is more a matter of pressure control. The feet are, however, not comparable to the hands in the sensitive capacity of muscular directing. This does not excuse not bringing the piece of mechanism to be operated by them to its best possible efficiency. It is a makeshift. The strip is likely to slip. There must be a mechanical compensation between the small to

the large. However, it does allow the feet to hold the fort while the hands are obliged to be otherwise occupied. Please see the cut of the pedal control. They, also, allow the three scales to be simultaneously operable since there are but two hands for three scales.

Some sort of pedal control is indispensable. I vision pedal accessory control of light-color shade, color tint for both the fine and broader end of the light scale as a whole—from small spot to whole auditorium, from one light source to the many.

There are two pairs of pedals. The one pedal of each pair allows the compensating for pressure control, of one foot by the other. It can act as a balance since both are used for the one action. Both pairs can offer this help for counterbalance.

The outside pair move the shadalion on the third scale. This is the one furthest away from the player or from the front of the console. The two inner pedals also for right and left foot control the shadalion belonging to the second scale. The scale in front is played only by hand.

This scale, *to the front*, should be delegated to the lamp quantities asking for the finest control. These may be those to the very front where every gradation registers its effect most plainly.

So two of the shadalions are mechanically joined both for the hand and the feet sliding and rolling. The means for their propulsing are identical, except that this may be done either by hand or foot.

The eye demands that the move-

ment made, be smooth. The art may ask for possible pause at any or every degree point of the scale. It is to be remembered that these initial scale units deal with light at the finest end of its varieties, from darkness up. This is the end from the absolute of darkness towards the brightnesses. It is there that the rested eye can exercise its greatest discrimination. It is there that the eye can well note each least increment of visibility. *It is there that subtlest shade and tint are created.* And every such shade and tint is separately and distinctly — discretely—to be capable of having its own particular effect realized. Light color is no slouch as to all the marvels possible to the numbers of rays that can be mixed for new and ever newer color surprise. Unexpected beauties keep on arising after years of practice. Combinations possible to all the possession color also holds within itself, is practically limitless. The tools for the comprehensive handling of all the factors, including those of the space and the time for the right play is demanded by the majesty that is color.

On the present instrument the push down is exerted on the shorter belt. This throws over the smaller circle fastened at the centre of the larger one. The longer belt over the larger drum accommodates the entire length of the scale. The shorter belt does not. This makes necessary that a shorter motion cover a longer pull. The push capacity of foot gives the command. It makes difficult the allocating of any and every shade or tint to the moment its appearance is designed for. Yet the pedal here has its uses and its parts.

The technique of play through the

pedals must do the best possible to overcome two difficulties. One of them is teaching the foot to govern its motion at every point to the depth of the push. The other is offsetting as much as is possible a loss in the length of the distance that is to be controlled. The technique of this play may help much towards the results the artist aims for. Again let me make plain that the dealing here is with color not emasculated, chewed up or cut down for benefit of some electrical makeshift. The electrical must bow to the ray, not vice versa.

One more serious disadvantage in the present pedal arrangement is the slip that is sure to come about through the different lengths of the two belts. A good mechanic can do much to provide new means or improvements in the old to ameliorate any or all of these conditions. The device described and shown is for degrees to be carefully allocated to the play. It plays in with conceptions within the carefully applied detail light.

To brace the body against the front of the instrument frame helps the control. Practice and knowing what the moment has to meet will do a great deal. There is also the fact that one foot may, through compensating opposite pressure, do much to balance and steady the motion of its mate. Where greater, more rapid increase in the brightness or darkness of the light is to be made, the feet are more equal to the task. The timing of the detail degree is then not so meticulous. The foot control is, therefore, valuable in playing on the enlarged, the wholesale end of the light beyond the initial end of the scales also.

It is fortunate that the light from



one source merges smoothly into that of another. Separate means for different extensions of the scales are no obstacle to the one effect. For possible apparatus by which these further ends may be attained, please see my patents, No. 1,793,284 for Current Translating Mechanism and No. 1,854,547 for Motor-Actuated Switches. Please see, also, the cut of the wiring diagrams of many lamps for this, the larger end of the scale quantities.

Such mechanisms as those shown in the above patents can well be delegated to being activated by the feet. Other ways, not infringing on the broad idea, will be readily thought of.

One very large and expensive installation shows means for simultaneously changing the colors in front of many lamps. Please see my patent, No. 1,654,873 for Means for Controlling Light. Such multiple control, which must be considered as integrally a part of the larger, the cruder end of the scale from the one spot, could also well be managed by the foot. This installation, above mentioned, is a sample of color spread throughout all the confines of the auditorium.

A cluttering by excess apparatus is to be avoided. The less that the brain of the playing artist has to keep in mind the better. The subject, as here detailed, has been very carefully thought out. This, in itself, has brought the apparatus down to its simplest bases, without sacrifice of ray color's full possibilities.

Those reading this book will realize the comprehensive solving of the

large problem. They will realize that the subject has been brought down to its least working denominators. It is important that the road shall be abided by. And that it shall not be further retarded by getting into the ways—that are less well thought out, that it be not lost in the woods of errors—made by the non-expert or experts.

Exact and careful drawings preceded the fashioning of the instrument parts. These are in existence. They should be utilized before a wiping out of all that is in use at present is necessitated, for a re-starting all over again. Such delaying of the right outcome is serious to capital as well as art.

This laying out of the infinite variety offered by the medium, and the means through which these may not only be made manifest but played, reminds me of a story that used to find place in early school readers. I can but give its gist. It was to the effect of simplifying the mind's conning over, and *all at once*, the sum total of that which had to be met or done. As I remember it, the story took the form of a dialogue between a child and a clock.

The one marvelled to the time-piece at the great amount of time it must accomplish. "Yes, but," said the clock, "I have a moment in which to tick off each succeeding second."

So it is in the practice of Nour-athar. Though the sum total of what it may show is unbelievably great, it has, nevertheless, the separate pulsings of time within which to do it, *seriatim* and in connected order.

# IX THE ACTUATOR ACTUATED

## CHAPTER

THE fine art of light-color playing, used as a means of human expression, requires that one be enabled to get the rare shade, the subtle tint of color even as the sense demands.

The intermixtures of ray with ray, possible to their color, are well-nigh infinite. None can be missed for this purpose of their use.

Technically speaking, arriving at these pre-supposes not a few hand and foot motions to be made within the mechanism created for the purpose of producing them. What I have called the actuator bears the brunt of much of this. Please see the appended cut of this piece for the play on page 158.

In the state of matters ruling exchange in this part of the world at least, the *unnatural*, in the guiding of many affairs, pertains at the present time. Worlds of effort are artificially ruled out of their natural orbits. And this is by what may be called the artificial factitious, even irregular conduct of such affairs. It is in a way a situation monstrous. It has been brought about by a shallow, a cheap, a greedy smartness. A turnabout may take place. To issue objects crude by the myriad, because of the fine making a harder toll, is a wrong to man. The encouragement of this subject in the crude, in its far from complete or comprehensive practice has been universal. The road to the perfect art should be embarked on. This is tied up with that instrument, some of whose needed, indeed essential capacities are not so wantonly lopped off. The general attention should be called to

the Sarabet. It represents the initial, the well-directed labor, study, effort and skill, which playing the art calls for. In it the *full*, the *complete* possibilities of the art were kept in view—not the pitifully small part of it—not itself crippled and maimed.

There are twenty-two actuators on the console top. Each has at present three possible positions including the "off" one. Each of these positions interact with some one of the three detail scales as wanted.

*The whole*, in other words, as may practically be used *is now before one*. I think that very probably the eye is set. Its development has come by that which it saw. No further infraction into its habit will change this.

This excepts the setting forth every other degree of the perfect two hundred and sixty-seven out of each 1500-watt lamp. I will allow this evasion for the time being at least. The reflecting surfaces and conditions may be still improved upon and as easily in later years. In that case the dropping of every other shade may be noted in the play. This is not the case now.

### *Brain and Muscle Memory*

It will often not be possible to stop and think before the play has to be made. This is, to say, in general. Memory of mind, together with a semi-subconscious muscle habit for the right contact of play with the right instrumental position of part or member, are important servants of the technique. These will come about a good deal, as a matter of course, through the practicing of the art.

The place of the lamp, the spot in which it stands, has much to do with its color values. It is to be desired, indeed it is highly important that all arrangements be standardized. This includes defining the spots from which the light sources are to send their rays. Everything pertaining to the color emission of the light sources and their relative positions should be definitely fixed. And such should be internationally agreed to. There must otherwise be much relearning with every fresh installation. This neither the individual or the world has now time for. Once the arrangements are standardized, and such arrangement abided by, the connecting in the mind of the muscular action for the result will be much simplified.

#### *Standardizing the Wattage of the Light Sources*

The higher the wattage of the bulb, the finer the color result: the sharper and clearer its "sing." I do not know how else to express it. The computations back of the instruments, that take account of the initial end of the scale, make possible the use of three (3) 500-watt lamps in place of one 1500-watt one. But in this case it will not be possible to dim the light of the three units to the black or absolute of darkness. which is attained in the one 1500-watt lamp.

The initial unit to the very front should be of the 1500-watt capacity.

There is an advantage gained in using, in part, three 500-watt lamps instead of one. The positioning of these, removed in space one from the other, yet played on as one, will allow a greater space spread of the color.

It is at the central front that the

light and its color will count for most. It is at this point that the detail of the scale degrees will begin. The lamps may there be of lesser number and the higher power. It is at this focal point that the color mixing will count for most. And this goes for either their expressive power or the beauty in their give.

#### *Interplay of Actuator with Scale*

To each scale unit belongs its own set of actuator grouping. *These groups may not be interchangeably used.* They each connect with their particular scale by separate wiring.

1. The first group of eight actuators is electrically connected only with the scale path nearest the front of the instrument frame. The shadalon of this scale is operable by hand only.
2. The next group of six co-operates with the middle scale.
3. The third group of eight with the scale furthest back.

The shadalions on the second and third scales are operable both by hands and feet.

#### *The Plural Filters to the Single Light Source*

The devices for moving any of a plural number of color filters at will before the single lamp opening increases much the light's color possibilities. This must not be forgotten.

It is not possible always to see the color of the filter which at the moment is in front of the lamp, from the console. A series of colored pilot lights will announce to the player which of the several filters is at the moment in front of the light. My patent No. 1,945,635, Fig. 18, shows this novelty. This Figure shows also the capacity for telling the artist the place of the particular filter in

relation to the lamp opening by the intensity of the glow in the pilot light.

### *The Color Variety Offered Is Very Great*

The color possibility in itself alone, viewed in the light of variety gotten by this remote change of filter so offered, is very great. Add the shade. Since there are two hundred and sixty-seven shades possible to each lamp, change in the filter, it happens to have in front of it, makes a vast addition to the full intensity choice by itself alone through its shade. Add tint similarly. So large a numeral intermultiplied will yield nuances that can well exhaust the imagination. Indeed, it adds up to the reason for all-the-world-seen. And this factor, that allows seeing the all through light by its reflection, is under your very touch.

### *Technical Attainment*

A certain amount of technical attainment is essential. The beauty of the spectral color will tempt one to think that any appearance of itself at any old moment will do. This is an error dire. The gibberish of a mad man making sounds that have no sense or meaning are comparable to result gotten in this way. It is the hodge podge through the haphazard, the unplanned and, therefore, the meaningless.

### *Intention Helped by a Parallel Art*

I must grant you that a second art running in parallel to the light-color play helps in attaining and perceiving the sense made. It helps both producer and reviewer. I do not grant that such added prop will always be the usual. The other arts have a long lead in point of use. This one is quite likely to have now un-

dreamed of potential possibilities as an art used by itself alone.

Consider that sounds are still more lacking in material substance than is the light ray. Expert authority exists that light rays are in the nature of matter. If sounds alone can deliver expression of supreme subtlety, in this medium there should surely be lurking the probability of play in atmosphere of ray color done of and by itself alone. But I must grant you that such solo performance of light is largely of a future. It is of a future not ridden by organizations thinking the windmill offers a logical road for their horse riding in the manner of Don Quixote.

Keep in mind here how the brightening of the light at a given moment, so much now practiced for and by itself alone, has earned a large success. How entering the eyes it has caused the hands to clap. By actual experience in a subtler play of light and its color, without other support, the audience will understand that at which you are driving. This can be brought to such fine ends as to entail a highly discriminating technique of play largely through the actuator and its scale.

Much of the choice needed in developing a light-play conception can be done away from the instrument of play. The mind's eye will vision the showings from the focal front or anywhere along the line. Is the intention best carried by the blue or in the red? Standardizing the lamp placing, lamp positioning for the color expectancy is very worth while. It makes the same result available to all artists, no matter where or who these may be. The constant change in positioning of lamps in the theatre has been found truly back-

breaking. The system here set forth will make all this trouble unnecessary.

As has been explained, the lamp positioning must be approached via consideration of the auditorium itself.

Sound may be heard anywhere, providing the acoustics are not too bad. Light calls for its own physical preparations. All the instrumental arrangements must complement the very nature of the light ray itself.

#### *"Approach" in Moving the Actuator*

Grasp the actuator by the hand. Brace the second finger against the raised portion. A label could well occupy the level surface leading to this. Remember the means by which this piece of apparatus is nicely hung and cushioned to allow of the sensitive "approach." Move it forward with the greatest care. On this depends the energization of your color potential. This is to happen at the precise instant required or desired. Not too soon. Not too late. The dealing is with seconds and fragments of these.

Remember that the actuator, as is said of some women, has a heart of mercury. This it is that has also called for the finest in design and control. Choice for the result held in its current routing capacity is in its combinations wide. It is well to remember that this contact-making fluid is caused to move forward or back over a very small space. This space is not more than half an inch. this, in itself alone, implies a nice control over the muscles of the hand that move it.

#### *Care of the Actuator*

Less violence will be done the mercury fluid if the shadalion is at the extreme left of the scale when the actuator makes contact with the

electric potential leading through the scale to the lamp. The electric potential, also, has its sensitive requirements. To place the lamp "on the line," it is best if the shadalion is at the extreme right or brightest end of the scale when the actuator brings about this result. The converse is true when this play is reversed.

As to the operative niceties that might be mentioned. The mercury is glass enclosed. The glass will break under undue current. This is a safety valve.

#### *Much Choice*

The choice is great which the actuator provides. The interactions are many. Twenty-two actuators of three positions each. Three scales. The place of the lamp and its position. The multiple color change for some of the lamps. So, the subconscious muscle memory helps. This part of the apparatus plays an important role. It helps much the detail, considerations and discriminations possible within color.

#### *The Notation*

The light score will guide. On this the particular actuator units to be played at certain moments can well be noted. Then, too, to the eye the changes should be leisurely. This is of a paramount, of a very great help to the technique of play. The eye refuses to be teased, as it quite properly should. It also helps that the progressions move with an easy grace. They are not forced in point of timing. Light play has its own quiet sway. Its capacities are ideal for breeding repose. It may conduce to the serenity of stillness. Restful to the eye, soft in hue, it may tend to soothe towards a needed calmness. Ideally, it offers the occasion for inviting one's soul.

# X

## CHAPTER

# OTHER CIRCULAR ACTUATORS

A COPIED idea, altered and placed within a similar form, finds a double difficulty in warding off the accusation that it has been suggested by that original to it. It must meet the criticism. So long as it is in use it cannot escape. An invention that has been made and patented in advance of it cannot be evaded through some immaterial change in degree from that claimed in the invention copied. Such does not *alter* either the moral guilt or the legal one. Much harm may follow in its train. It may even prove a grievous wrong against both humanity and the individual: for fine art is a potent tool of life.

Other circular actuators than the one described are now in use in some imitating consoles. These, one may say, are so conceived as to open the doors *indirectly* that start the electric current to flow through the lamps. This causing through an indirect way may be consummated by the actual means being placed either in garret or cellar. Much has been hidden in such spots in true illicit fashion. This exciting to electric action far removed from it is done in a circular object on the console. On such console (*sic*) they may be seen grandly displayed, yea, even on famous movable platform. Player and all come up for the showing and then go down again.

It is only fair to myself to point out the similarities, to those who are conversant with electric apparatus, between these rounded actuators and those patented in their combination and used previously to them. I refer

to the ones that make a part of the Sarabet instrument. To do so is historically worth while. It clears the subject to distinguish between the point at stake and its pedigree. It is a right excuse for pointing out the proper course for progress to take in the matters.

The rounded object, of which I write, acts in conjunction with tubes that have been given the name of thyrotrone. The word does not appear in my dictionary. They are like those of the Sarabet placed along the top of the console. They are labeled with color that may be that of the light they energize. Their indirect action comes by way of mercury vapor. Here we have an excuse that tries to distinguish between a material and its greater or less attenuated form. *I own the basic claim on any console using mercury fluid as a constituent part or component of itself.* This is, of course, regardless of how the combination is brought about or qualifies.

This action, through thyrotrone tubes, seizes the tail of the scale, its wholesale end. It eliminates from the light scale the finer end of the color detail so essential to expression. It, also, is ridden by the presence in mind of the power house needs. This interjection of the power house in the problem is a relic of that which obtained at the starting of the aim being written about here. It saw only the everywhere present tentacles for purveying electric juice, and all for vastly differing purposes. It did not distinguish between the slightness of the lamp filament and

the cable for running a trolley car.

The idea back of the understanding does not start afresh. It has not a clear-eyed realization in this case of the delicacy and minuteness of the electric bulb filament. It sees only what might happen, considering a power house not equipped with the now well-developed automatic control of its power. It has in mind only danger from overheating. It still harks back to the switchboard of carbon filament days.

Did the imitation entirely duplicate the results of the item that led it, there might not be cause for doing away with it. But this indirect starting of the current to flow in such an instrument *interferes with the timing*. The action is slow and so the wanted result is dislocated. It does not take account of the fineness of color shade, color tint. It, therefore, does not fill the bill in its position on the instrument, even though it meets the wording of patent claim running basic to it.

It is a bad precedent that allows of a cheap and incompetent appropriation of a parent idea. Especially so, when it is difficult for it to escape a charge of infringement. Most certainly it was the parent innovation that suggested the aping idea. Without this the copying would not have been thought of or done.

This "thyrotrone" tube control could conceivably have a use in the wholesale, the cruder end of the light-play scales. Like the long lever that is limited to the, comparatively speaking, minute diameter of a shaft, in the metamorphosed switchboards of olden time, it has not sufficient space movement scope to play with the scale as the eye can see it—nor as color demands it.

*The lamp filament is a bird of different feather.*

The fine art itself, the nature of the human eye viewed in relation with the way in which the light itself is produced are the governing, are the only governing factors to be taken account of in this problem. *It starts with the current available at its stable rating.* The need is only electrical as it meets expression via the eye.

A gradual cumulation in the light quantity from absolute darkness up, according to the seeing capacity, simplifies the problem. From it there can then be no hedging.

The individual cannot have a corps of secret service men to protect his product. Where did they go? Who holds them now to see how they may be copied and still, perchance, evade blame and the "day of reckoning." The individual seems no more to count. Alas should this be so.

The words "hard," "callous" come to mind. These need not only refer to hurting spots on toes. They are ghastly parts of the mentalities produced by the big (?) affairs of modern day life.

The rotary means referred to could, perchance, do for the producing of the broader light quantities that extend the finer ones at the beginning of the light scale. But for this also the intermediates must not be unaccountable in their human values. These must be capable of following up the reckonings that keep on extending this broadening of the scale, point by point, in degrees of least visible increments to the human eye. They must be capable of meeting the required timing. This is a timing without which the attention cannot be held. |

# XI

CHAPTER

## BEGINNING AT THE VERY BEGINNING AND ENDING AT THE VERY END

THERE is a fine technique that can and may be exerted to the manner of laying out the spectral material within the enclosure. The art is of space. The art is of time. It is of light. It is of color. The arena is of the *all around*. The seeing span of the eye has its say. The showings are of an elastic lessness or moreness of many sorts within this sphere of action. And these are made to carry, if not pronouncements, certain messages of expression. They set forth and make manifest to the observation, particular suggestions and understandings. And this kind of conveying of ideas obtains, according to the admirableness with which the context of feeling or sense is interjected or posed within the whole.

The technique of handling the means consists, in large measure, in contriving and apportioning the light intensity degree. This is done in a joint consideration with the extent of the spread. A pointed piquant or pungent intent may be shown at a restricted portion of the space to the vision. It may appear within another and attendant wider but fainter secondary background. Through a well-made growth in either the one can play into the hands of the other. That which is restricted within the smaller space may wax towards and within the other in the direction of engulfing it. Or, in converse, the wider spread may be made to show greater intensity as it is pulled in to accommodate the lesser extension. The appearances will be made to help

carry the aesthetic sense and beauty accordingly.

To play the varying expressive powers held in light homogeneously, even to the entire space under control, is one of the delights as it is one of the difficulties of the art. The medium and the instrumental means require careful handling for concluding the wanted result. And this large order is commended or demanded *by the wide range of the seeing field of vision of the human eyes*. In this, Nourathar is different from the art of picture making. By this, I mean, that all the space the eye can see at once is not a concern of the painter's brush.

It helps nothing to lop off any end of the light scale to curtail its range. These do not ignore that which nature itself suggests. Especially is this so in the detail degrees of darkness, of brightness. They are integrally a part of light and its color. Any portion of the scale, as a whole, is well nigh indispensable.

The technique of this play, through the playing parts provided, views the light palette as beginning at the least perceptible of the light and so, in fine gradation, waxing up to its apogee of greatest intensity. Or, as a decreasing from the entire, down to the least point. The play does not restrict itself to some portion of light's possible manifestations. As well call a man's leg his all. The resulting poverty in such curtailing is something as the dingdonging of a bell at its one point of sound. The light of day is not encompassed



in all its changes by the noonday hour, nor by the moonglow either. It is, on the contrary, all of the stretch of light to the eyes, in its multitudinous ways and conditions.

To cut away and put out of consideration the biggest end of the light scale, to curtail it into but a semblance of itself, is like saying goodbye to the fulness of one's ideas. There is no true beginning, no real ending to flopping on large quantities of the same color constantly and without variation. There must be a consciousness as to the possibilities of the scope entire.

That is the full and proper view that governs the technique of play. But such play requires the instrument that can meet the survey. Such instrument must be capable of dealing out all that may be contained in the nature of light to the eyes. The very purpose demands it.

The placing of the light sources is an important factor. Fortunately, the ray spread out of these is wide. It can embrace much.

The broad viewpoint cannot be driven home too often nor too well. No feature of light may be neglected without serious loss to the art as a whole.

So: the scale for play through Nourathar begins at the absolute of darkness and the least point in space. It extends by least visible increments to the highest brightness of which the lamp choirs are capable. These should encompass in graduated extensions the entire space featured. Only the auditorium confines limit.

And the majestic breadth of gamut of human feeling brooks a scope in scope in extent and detail no less.

All this helps define the achievement. It allows of enlarging the boundaries of the accomplishment. It pushes still further away any attempts to belittle the originality. For there is much that may be mentioned outside the patentable matter on which many hundred claims have been filed and allowed the writer.

I deny that there was any manifestation made of a widespread continuity of colored light prior to 1905. This, in itself alone, irrespective of the purpose. Too much had to be contrived (this is well known) in the way of the many objects that had to be arranged for and placed before such display was attained. And this was not so early in the century. I deny that such spread, of itself alone, regardless of any purpose, was rendered visible to the eyes till I tumbled to the necessity of an outstretch of reflective surface that would meet such an expansion in ray and deliver the result to the eyes.

The heart of the achievement, that of using light and its ways as means of expression between man and man, has much to show that was novel and first made around the portentous nucleus itself. The recorded datings carry their undeniable proofs.

I deny that any change in the intensity of the light for the purpose of grading to the eyes existed before 1919.

A tree does not grow without the presence of the seed that can govern and bring about the outstretched potential. And this seed is well padded by a soil created only that it may be capable to grow and be fruitful.

## XII

CHAPTER

## SUB-CONSCIOUS REACH FOR THE SPECTRAL COLOR

THERE are beautiful parts to the way a portrait painter, worthy the name, handles his brush. To watch him is an engrossing experience. There is something quite utterly exquisite in just the manner the point of his tool unconsciously seeks the bit of color or color mixed on his palette that the bristling moment needs. He takes no time to consider where the particular bit of pigment lies on the rounded tablet about his thumb. The action is neatly subconscious. Unconscious gesture is at its highest. You will agree if you have seen.

And think what his task confronts! No less than to fashion the image of the muscular systems on a flat sheet of paper. An image which it has taken Creation eons to develop.

This he could not do if the placing of the little mounds of his working substances are disorderly. These cannot be different in their positionings one day from the other. The point of his brush must know where each hap to be from day to day.

In light-color playing the light sources, with their particular filters, are the counterparts of the tube colors on the artist's tablet. These, also, must have, within the limits of possibilities, always the same positionings. They are otherwise not subconsciously accountable to the hands manipulating them at the console.

This placing should be standardized. It should be the same for every spot in which the art is to be used. Their being called upon carries its own particular liabilities. To subconsciously be able to draw on just

what the moment, bristling for just the right tinge, calls is in its way a need imperative.

This much must be given him if the artist is to touch on the instrumental intermediate which the conception *at the very moment* needs. This is a necessity to the technique of play. I lean on this insistence, no matter how small or large the auditorium, no matter how many or few the lamps in the light choirs.

I append a diagram of a very simple arrangement that was used where a pitifully small amount of electricity was said to be available. It is given but as a suggestion of such arrangements. (See page 350.)

I cannot allow the opportunity to pass. It will put my pen to the test I know. I would do it very well if I could. I am thinking of the two arts: that of painting the man's portrait and that of showing through play of ray, some of the chosen subtleties that transpire within him, back of his face, back of his flesh.

It is enough to point out that these are of two worlds entirely different. Even the play of expression on a face cannot pretend to reach the fields that Nourathar may and does exploit. In it we grasp the centre of centres.

### TECHNIQUE, TOOLS, WAYS DIFFER

To explore such innermosts within the being's face, his flesh; there where these hitch-on-to-kernels of the Universe, through the light that helped make him—this is the purpose of this work and its writing about here.

# XIII

CHAPTER

## THE OBJECTIVE VIA TECHNIQUE

WHEREIN lies the existence or authority for a recognized emotional conception made through light-color playing? Let us begin at the beginning. Life has been doing nothing but create values, qualities, quantities, extensions, weights, spaces and times, always. No matter in what way these come about, they are interrelated. It is a great pit full, an ocean full, a high mountain top full of them. The artist comes along and picks pieces and bits of these *values* and, through a medium distinct, he joins them together to make a new jewel.

By what logic does he do this? He but matches a sequence of these outside him to a parallel sequence he feels within himself. There is a recognition between the two. He only limits the choices made to the scope and reach of the material through which he elects so to work. In this art he does it through the spectral ray. It has qualities, values, so have the concepts he matches in like.

### *The Values Outside Us Have Created the Values Within*

Every one recognizes these values as belonging to *common experience* undergone by all. Both those outside him and those within his body are linked. It is *this belonging in common* that gives him the power of causing others to realize his meaning. Once having produced the citadel of categories held in common within us, it, as such, becomes the intimate of ourselves and ceases to be of the outside of us. It is not only

the intimate of us but it is also the intimate of the others also. It becomes a means for message from inner man to inner man. The values, too, have become linked even to processes of the material body. They are, indeed, foundationally determined by it and have become of it.

And so colors per se also arrive at acquiring their expressive values as art. They connect with values within us that are something more than what these colors inertly have outside us. I presume you *can call it humanizing color*. In doing this you invest them with a something new. There is a groundwork to the fact, of course. By having had their share in making us they become tools of that which can be conveyed through them.

These spectral colors each have a value, a quality, a quantity, if you please, of their own. They are of a variety of moreness and lessness. Indeed, they seem to have some sort of a differing placing in space. They seem to tend towards a hub. On the primary rainbow, red is on the outer rim. On the secondary rainbow, the colors are reversed. They have then a natural relation one to the other as to a seeming precedence in space. And so there is cause for precise determination, for separable definitions of still other qualities inherent to them. They become through these possible as expressing media.

It is patent that all these values, qualities, etc., have been bred to a constant, a daily accompaniment of darknesses and brightnesses.

Light, in its natural state, encom-

passes the eyes. It surrounds them. In this it is of an effect on the whole of the being. It is of the all about. It comes as part of the space, entire of the everywhere. No other art medium playing to a particular sense does this. It is a value in general.

In Nourathar *it is not one but a vast number of successive values that do the speaking.* And, through their successiveness, the art through the timing hitches them on, in still another way, to the mechanics of the body. And *this time form* makes the definable shape in time change of the spiritualities put within the play.

This mechanics, through its timing, is the heart throb back of pulse that also is common to all, in its subtle suggestions. It has bred the rhythmic sense and so, too, the rhythmic expression. Through it, humanity and, indeed, the animal world entire, IS SPITTED THROUGH ITS HEART ON A JOINT SPIT. And this, both across the age of now and the ages of the past.

So the heart-felt timing joins with the light, the color, the muscular, the degree and further to make a speech of general use as art expression.

By way of a digression, the timing of pulse may have undergone modification over the ages. It may not. I think not. The theorem is an interesting one. The arguing as to this is full of interest. Conclusions are not easily arrived at. The form of animals can be reconstructed from their fossil remains. The silent tick of their being leaves no petrified trace. The basic cause may be an unchanging one. It could pertain to defined characteristics within physics or chemistry. It does allow the rhythmic scanning of Latin prose

supposedly lost. But then Latin prose is so recent in the sense of evolution.

There is a rebound, a reaction, on the usual heart agent by rhythmic artistry. It is a recognition on its part of this consummately used beat taught originally by it. There is a stimulation of its action on seeing a masterly use of the time shadings bred within its recurrences. The heart is caused to beat faster, to beat slower, within its physical scope according to the feeling the artist conveys. So the light playing, in its turn, breeds a reacting effect. A mental and spiritual and even physical animation can follow. That is not an inconsiderable result held within the objectives on which this chapter touches in a manner highly cursory, and but vaguely suggestive.

A vast number of the interactions used in the practice of this art and exerted by it are immeasurable. The reach is further than the judgment. This is its label as art. Enough factuals are there to meet any insistence on reasoning, rather than feeling, regarding its logic of practice and being. The experiences it can transmit have the last say.

Consider again with your inner eye the universe of color. There is the dye world since eons before Tyrean purple. There is the painters' showings since ages before Michelangelo and Titian. Then there is the offering of nature through chemical refractions in earths and leaves and flowers. Seven thousand namings, it is said, have been given to various hues of color and these are but an infinitesimal portion of those that could be given. This art borrows all this territory of color per se as its own. And more, too. For it uses this

kind of ray at its source. There is no loss of its completeness in transit.

Such a command of this phenomenon has not heretofore been at hand. It is being written about here in the form of a handbook for the first time.

Moreover, the control of its production that has been evolved is at the push of a knuckle, the turn of a hand, the pointing of the toe.

Chance has been in the past the fate of color. Hues often have been "paradises lost" not to be regained. In this development they are of a permanent, a defined record, Through a marking a notation they are recoverable once more.

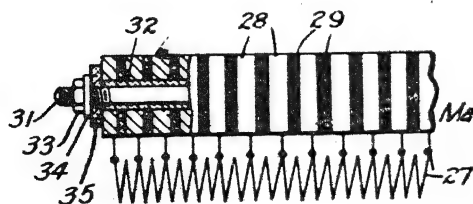
All this that I so briefly refer to is but a happening in the real end, made through the practice of the art. This end is that of creating infinite variety in human expression through the infinite variety offered by the spectral ray's unadulterated beauty. That is a large world of its own. It leads where words may not follow. If words could, the art would have no ground for existence.

The facets are so many. The facets are so various. The significances that may, and indeed have been attached, need now no proof.

Within all, is the gasp of delight at the sheer beauty of the appaearence of and for itself alone. That, also, causes a stimulating redound in the body's mechanism. It brightens its routine action. One "claps the hands" at brightness used as artistry. And this is beside its jewel color, this particular pointing of itself.

Here is an instrument for technique of play to break a sword over. The structure has been carefully fitted and interfitted from bottom up. Countering invention will not be easy. "Le pavilion couvre la marchandise" in no uncertain terms. This textbook has its right authority. Much that has been put down represents a lifetime's labor. It is a large order. It is done to further the delectation, help, pleasure of mankind. It is to the benefit of the world to prevent any practice of it that is deterring of its right coming.

Through such existences lies a bit of the authority of the art. It is of the instinctive as well as the actual. Through the physical and the mental both, it makes expression. No interjections can properly manage without its setting complete, its instrumentality, its valid and complete operability.



INVENTOR

Mary Hallock Greenewalt

BY

*Wm Bichel*

ATTORNEY

THE LIGHT SCALE PATH FROM AUTHOR'S PATENT NO. 1,731,772,  
FIG. 5. MOVING ACROSS EACH DIVISION CREATES A LEAST  
DEGREE OF BRIGHTNESS OR DARKNESS, COLOR SHADE, COLOR  
TINT TO THE HUMAN EYE

## PART SIX

### *Composing Through Nourathar*

#### I THE COMPOSITION IN CHAPTER NOURATHAR

EVERY fine art has its own variety of limitations. These may be bound by the character of the medium used. They may be circumscribed in the content such medium can convey. Each has its own difficulties of performance. But it is true that the one may furnish that which the other cannot. It is a mistake to try too hard to push one art into a field legitimately belonging to another. This has often been done. Aesthetics, as a whole, show many such examples. They have frequently been made subjects of argument and controversy. The attempts have often been remarkable in the powers shown. They none the less and, perforce, present lamentable circumscriptions.

It was a painter's canvas. It spoke in the idiom of the clan. It hung in an outstanding metropolitan exhibition. The figure was of a huge, ungainly, disproportioned, burlesqued, and ugly woman. Grotesque, it belied the human form divine. One might say: it belly-ed it. The breeding centre was of a monstrous, an unholy size. This alone suggested a travesty. The caption was "New York."

The artist didn't have to say: "If you know what I mean." What he meant was plainly seen. It was a good many years ago; still it clings to my memory. This remembering,



this fastening of a concept in the mind is a positive proof of excellence of some sort. The painting did hold a content large. Even as emblematic of New York. It suggested well that so much of this, that the town so ardently spews, tempts the grimace of aversion.

But the conception transgressed by wandering afar from the brush's legitimate field.

It is true the portrayal could, with difficulty, be found to express anything much different from that which its label suggested. And "suggested" is the correct word. It could not, I think, be thought of as picturing monstrous shapes within the depths

of seas. It did go beyond or rather not near enough to the particular province that it was labelled to cover.

Prose, similarly, often steps across the threshold of poetry, and poetry across that of prose. This, I think, is closer to the legitimate. Take down the fences of poetry and prose may not be the result. Put up the fences to prose, yet the poem will not be there. Sculpture takes a voyage even into formal philosophy while architecture creates pearls for oysters to dwell in.

I am taking a roundabout way of tackling a difficult point: What content rightfully belongs within a light-color play composition—under the hands of an artist worthy the name, of course. The material, the medium itself, used for the transmission, is so etherally perfect. Here we have an adverb that can also act as the noun. For the medium is of ether. It is as beyond us, as thinner than we. It is exquisite as no words can convey. The work constructed of it is more of the Rafael Madonna sort of beauty. It is not of "New York."

I doubt whether this art can ever be led to tread into expression of the bad and the careless here below. It is in its very being of the above and the beyond. And yet even light color can be dirtied according as to what it visits en route, through the eyes, to the inner being. Of itself, regardless of its message, it can become ugly. It can become indistinguishable.

Light-color playing has, to a perfect degree, the capacity of imaging the very soul of thought. But it is the soul of it, not its debate. It is, in itself alone, so free of dross. This far in its progress to mirror an animating principle or principals, it has

been woefully mistreated, abominably burlesqued. Yet, in spite of all, it has held an own for itself.

Though the material of it is a picked centre of the *All*, it is also an envelopment. It can circumscribe all going on within it. It has the capacity for fitting this roundabout to anything which is of space,

Playing through colored light holds forth possibility for the exercise of taste and choice and fitness. The *quality* of the particular inspiration can be recognized in viewing the practice. Play through the beautiful and all else that is in it can accent the elevating, the creative influence of genius. Through it, a heretofore hidden-within-a-man's-sensibilities may, in a way, now be for the first time made manifest. The medium is of his body as well as his essence. It, therefore, has substance. It has grace.

Even its present wide, though crude, practice absolves me of the attempt to make proof through word of its demand for existence. The playing through it already makes plain the extremely interesting aesthetic discussions which it has called forth and may call forth again and yet again. It is not of the imagination strictly speaking. It is nailed to the cross of mechanical parts, to the instrumentalities fashioned of wood and iron that are necessary to the embodying of an ethereal form. Above all, critical acumen may be exercised towards any showing through light-color playing. This has been proven. And the critical faculty is equally deployable towards its beauty and worth as a means for variety in subtle human expression. Its limits are those of feeling. Through sentences I can but suggest the bigness that lurks within.

## II

### CHAPTER A TALE OF THE CHURCH

**M**Y LIGHT-COLOR play instrument had been installed in a silvered chapel. I myself had attended to this large labor connected with both the interior arrangements and the installation itself. The work involved, that of placing and making ready all the necessities, had been severe. Everything had been brought to completion for right service and possible further call. It had been a welcome opportunity for both the fine art and its operating means.

To be sure, the chapel was on the grounds of an institution for the mentally ill. "I want them to see something more beautiful than anything they have ever seen before," had said the physician in chief. There, was an opportunity doubly fine, I had thought. Playing on them through light could well be a help to curative agents. It could be an added succor for steadying the mind, as well as an enhancer of their lives? Was it not said that Christ was born in a manger? Why not gain further health of growth for a fine art through a haven for the sick. It seemed worth the great, the long effort. It could easily prove a double benefit to mankind—bring out still another cause for its being, outside that of the enjoyment of its beauty.

It devolved on me to arrange the light-color play programmes. I thought, as the performances progressed, how fitting to home the reciting of the Lord's prayer within the ethereal beauty of such ray music! The place was a chapel. Precious



stones had often jewelled emblems connected with the church and His name. Why not *fluid* ruby, and diamond and sapphire and topaz and emerald? Perfect barbs piercing the everywhere, even as prayer. Through the silvered surfaces, the glass altar and redos, the chapel itself was one of an unusual beauty.

Is there any strain to religion in featuring a consummate piece of beautiful wording with Creation's very loveliest phenomenon? With light and all its colors? Could any unbiased logic hold doing this an insult to holy feeling and sanctity? The delivered programmes had met with great praise. There was no doubt as to the success of the art itself, and its effect on the audiences. It had won its way in combination with the secular, why not with the churchly?

An objection arose. I was told "the ministers did not want it." These preachers of the gospel belonged to various denominations. There was Jew as well as Gentile.



Why any objection from either one? The use of the chapel was for furthering systems of faith. The obstacle raised was of serious import to the undertaking.

A straw points the way of a wind. Was there here a little organization of the "ministry" within a larger and still ever larger one? Did such systematically combine? And was there a controlling head to them regardless of the special belief? Was one kind of religion in this a part of all the others? I marvelled. Light is so innocuous. It does not obtrude. It mars neither sight nor sound. It does (is it a little thing?) but lend an aureole to spirit. It helps idealize matter. Matter which, in its way, is supposedly a hurdle in the path of pious feeling.

The whole labor of this creating a new means of fine art expression over the many years, had grown to be like unto a divining rod in my hands. It had proved so valuable to exchange as a whole. It could almost forestall a reason for intrigue. It was like something that discerned the hidden, the secret. These were machinations of all sorts. They proved to be engineered by a variety of organizations which, in their natures, had become conspiracies. It was something that could point to plans hostile, even as they were in process of forming. There was deliberately created upsettings of the logical course of the designs made. Through it much had turned up that otherwise would have sped along unsuspected as to its root and reason.

With my many experiences, with the true and unmistakable perceptions they had laid open, I wonderingly asked myself: "Is it possible?"

There was no apparent logic to the exception made by these servants of the Lord. At least one well-known Cathedral had tentatively stepped in successfully, so far as it went. It had darkened the white of the light at the words, "Let us pray." It had brightened it at the rising after the genuflexion. But then it had used equipment furnished it by the large electric aggressions. Did that make everything all right?

This, the Lord's Prayer, as symbol for the argument, has been repeated often enough and how? as the saying is. It has been cried out within the most filthy, squalid, diseased and criminal surroundings and circumstances. It assuaged sorrow. Even here in this chapel it was an offering to minds impaired, overwhelmed, defeated. *What real cause for an objection* was there? Why here, and so, was the art denied a lustre, a shine? Could it not have been made a surrounding most fitted to the hallowed words?

The walls were silvered, the altar and reredos were of glass. The ray came clear. The beauty and success of the introducing performance, that had been given there, were beyond question. Its success had been widely acclaimed.

I am neither religious nor anti-religious. I delight in sensing beauty where it is. This was a more, not a less. Did the unexplainable attitude of these men point to a condition operating out of sight? Did the divining rod spot a mineral acting within another hideout? Was it the devious powers of gold? Was this buried treasure of golden exchange a concern of the church?

It was well known how valuable the subject of light-color play was.

Its riches had been looked upon by greedy eyes. There was, I had learned by the same sort of indirect experience, organization within organization, secret societies and societies not so ostensibly secret, in action galore to protect a monopolistic hold on control of anything breeding large money and its power. This was both national and international.

It would seem excusable to suppose by this sample that religious sects are in part expedients for holding a large number of people together. I absolve none of this aim, and financial purposes, it is known, are closely tied up with the political. And the next is like unto it: that there is secret infiltration of hidden designs from one country into the other.

A value wanted or hankered after by them would be a part of their connivances, even as exemplified in this matter. It was so, that in my own mind I seemed forced to explain the utterly ununderstandable attitude. In these days a manufacturing value, even of a single thing, was one that covered the whole globe. They knew a chapel dealt in but the religious. Here was a way, however, to place the apparently innocent obstruction. The booty to be sequestered was momentarily large. Were these men also a tool within the general money schemes?

So, with innocent look, eyes uplifted over palms (fingers up) together, the rightful owner of a valuable subject was metaphorically speaking, taken by the shoulders and put out of the field so far as they could help to do it.

And back of even these religious leaders may be even an entire government of a country? Using its organized religion even to attain

backhandedly territory of this world's globe? Snatching this territory from unsuspecting people? Can it be that halos are sometimes deliberately thrown into the ash can? That the ash can is sometimes their appropriate home?

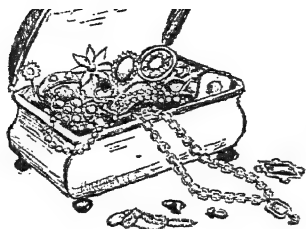
In words plain. Can it really be that a highest head, sitting perhaps not in the Vatican but in Church House, London, indeed in both, hearkens to the dictating voice of big business and its overgrown capital? Do they do this consciously and unconsciously? And other sects, are they but a protection from the bigger bugs which on their backs would bite them? Do these listen to the dictates of exchange so definite and tangible, rather than to the intangible of the bodiless? Are they and their communicants, so everywhere present, that they are in ideal position to help along the thumbs down on even the single individual daring to insist on what is his due? Are their heads and such of their assistants, as are "in the know" real snakes in Paradise? "Blood Sucking Vampires" of Holy Writ? Have not some of religion's words in the past been "Infamy, murder, rot, ruin and rascality?" Certainly organized religions of all sorts cannot escape the inference that they constitute a deliberate purpose, maintained to hold a number of people together for objectives, political and otherwise not announced or realized on the surface.

I have explained. I can leave it to you. To pretend going along with shadowy powers above while treading with concrete powers here below is no small crime. Is a merited punishment showing its head within current war history in the making?

### III

CHAPTER

## JEWELLING



## THE "LORD'S PRAYER"

**L**ET us jewel the "Lord's Prayer." It is ideal for pointing out some of the ways a ray accompaniment may take. It is brief. It is distinct in its burdens. These offer great contrasts. These are within wide extremes and in concentrated form. The prayer speaks of the All Highest and His Firmament, yet shows man as fearful for his food. It puts into relief the darkness of sinning against one's fellows and highlights our hopes for forgiveness. It is both of the spirit and the body. It hovers from the high to the low. It spans from a great cause of all to daily wants. While paying tribute to the on high, it is concerned with the here below. It is of the intangible. Its parts are on planes of space distinct. The values are well defined.

A very great number of people know it. It has been, no matter what else, an ideal means of propaganda for the church. As a beautiful piece of verbal expression it deserves a setting in a medium that is, in itself, a supreme achievement of Creation itself. It is a logical vehicle, for the jewelling with the spectral glory of the light. It is a masterly rung in the ladder of poetic expression. It deserves a halo. And it is a halo which we are about to go into.

There is no abracadabra about making a light score. Such belongs to the reasoning faculty, in addition to sensing. It is like unto mathematics, inasmuch as that, in all fine art the grey matter of the brain may

not be lazy. The stepping forth must be done carefully, advisedly, inch by inch, as the conception unravels before one's nose.

The spectral medium may be made to feature space high, feature space low. The extension is a part of its laying out. Either may be given prominence according to the suggestions of the content. The aboveness may reach up to and include the ceiling. If chapel or church, this ceiling may be found curved or domed. The middle reaches to the floor level in places of worship may then be a worth while foil light on altar, steps, floor and other parts within the frontal view.

### THE FORM

Like "all good things," and like Gaul, the form of the Lord's Prayer is of three. The middle, asking for needs here below, is sandwiched in between both a salutation and a paean to the on high. As custom of thought has put us in the way of taking this, it means a lower between two higher. Represented by one shorthand line a capital "u" down, the lower and then up would meet the needs. It would be a "u" in which the second vertical would reach higher than the first. This limning or lining up may well here simultaneously figure three of the dynamic means through which this form of expression may be conveyed. These three are: matters of space, the higher and lower, the wider, the more

concentrated, the darkness, and brightness curve as well as the more and less in color, finer or less fine, and otherwise. Separate curves for the three, in other words, would in this particular case crudely interfit. They would be relatively the same in their moreness and lessness: down from the high to the low, down from the brighter to the darker, and so into the color.

### *Part 1*

Seated at the light-color play console or the Sarabet the artist would at the beginning, that is for the first part of the prayer, energize the lamps shedding their light on the upper reaches of curved wall and part of the dome. This is the space flanking the altar to the front of the vision.

Reminding of the transcendental, the finer side of the spectral circle could be called on. Let us say, the true blue. Such blue may well exhort. Lift up your gates, oh ye eyes! and be the feeling lifted up. By "gates" we may also mean the lids. The beauty of the color ray may very well guide and help the mind to a right affecting and stirring. This could be both for those religiously inclined or those joying in the purely aesthetic result.

### *Part 2*

Part 2 asks for needs here below. "Give us this day our daily bread." Is it the green of the living? Of the spring that leads to the harvesting? The altar could well be the foil for the color choice. It is on the earth, of the earth. We may kneel at it. One of which I know is constructed of glass blocks. The sources imbedded within the floor and at the back of this space level could well be brought into play. Glass and such translucent

material helps the leading of the etherealness of the color. Through such the coarse in body is led away from.

### *Part 3*

A song of joy and exultation ends the Prayer. The paean is of the highest, to the Highest. "For thine is the Kingdom and the Power and the Glory for ever and ever." The space reach may extend, may extend. The brightness to the gold of the light and the white beyond could well be exhausted in all its power for lifting up. Higher and further along the dome, and brighter and brighter, and reaching for all "the world and all that in them is." All color in one. It is a sapphire-topaz making its ceiling way, its every form of upping way to the diamond. Thus, briefly, is but the crude of the skeleton of such conception. The flesh of finely modelled nuance is for the finished form.

### *The Nuance*

It is said: "Nature abhors a vacuum." It is true that art abhors the static, the unchanging. One could well say that portions unvarying of change are the vacuum of expression. In the finished light-color accompaniment, there would be no moments dead. The changes rung though slight are constant.

Through slight degree of difference in anything perceptible to the mind is spelled or suggested the nuance of idea to be conveyed. And slight progressing and retrogressing degrees in differences would be used within the bald general outline of all three of the factors of light play which we have mentioned.

The darkness-brightness would have its subtle curve within the broad outline and, to use the true spectral blue,

would not shut out a tincturing by the green or other enriching bit of color of this blue choice. Choice backed by aesthetic reason is the only master. There could be much finesse of election within the apparently simple leadings.

### *The Nuance of the Content*

It would seem to me that the Lord's Prayer begins in a quasi-quietness and repose. Weighty salutations have a habit of being tranquil. More of an awakening would come at the "Hallowed be thy Name." The light play would follow all such discriminations within the values of various sorts.

Similarly, consideration attaches to each succeeding strophe. And the burdens carried by the words themselves, the forms in which these are cast, demand their own arguments as to the sort and the form the accompaniment is to take.

The color conception may end in reminding of old paintings or it may have more the semblance of the modern canvases that love the full intensity color palette. The source, or sources used, their manner of handling, is firmly grounded within the character of the instrument and the instrumental parts. The technique of play is vested in the individual whose particular make-up is handling these.

"For Thine is the Kingdom, and the Power and the Glory" of the third part will call for other of the resources placed in play. The outer limits of the glory that light can produce will not be too great, either as to space, or its light, or its color.

### *The Timing*

The syllables as they slip off the tongue guide these moments of the

light-play happenings. Here, also, careful attention will show nuance in such timing: a shade slower, a shade faster, perhaps a right regal amplification. The timing has its own nuances even as have the other essentials.

This brings us to the fact that there is something still further. It is a something that is beyond the skeleton and the flesh and the light-scoring. It is the something difficult to put into words.

So here at the last and the analysis of the most valuable "last": its full burden of the which I cannot put into words. For what I would tell of is as intangible as the exact feeling back of the lift of an eyebrow or the shrug of a shoulder. Remember always the immense help the very beauty of the medium used gives. Lucky that the instrument allows so much that is perceptible by touch, so much that is within the subtlest reach of the senses fine. The "shoulder" and the "eyebrows" are there for you. The "lift" and the "shrug" you can make as subtle or crude "as you like it." So we have in a light-color play accompaniment to the "Lord's Prayer" that which is of definite apprehension, of a form that may be noted. It is the eyebrow and the shoulder of the gesture. The more elusive I will not attempt to go into by description. The light-play artist will know. He has the means even for this under his hands and the feelings back of his hands.

"The house, the stars, the desert—what gives them their beauty is something that is invisible." What I have described is but a shell. *What is most important is the invisible.*

## IV CHAPTER

# An Interpolation

ARE we driven by a might outside us? or do we drive? I am no metaphysician. My inclination is rather to formal philosophy. I know that in this huge labor the first push reckoned not what ultimate value may lay in the idea unfolding. Was deep interest as to the possibilities enough? Interestedness is much. It can play one as a fly at the end of the line may play a fish, and with as little mercy. But interest is a slender cord. The back and forth of labor are hard. It has been, in the present case, life long and unrepaid. And yet, the potential beauty of it all held me. It pretty well kept me as all its own. Till here it is accomplished, and this writing of it on the way.

It is a result that started only with THE WILL and that would not have been without the willing.

Strange, that a poor worm of a pianiste invited the perilous journey. But, then, the artist mind has many mansions. The artist has the imagination. To be an artist requires great will power, patience, a desire to further beauty. Though dealing in the lovely he has, nevertheless, added much to scientific attainments. History is filled with their names. The tree of fine art has borne many a luscious material fruit—discovery, development, invention, the practical, and the true.

My training through experience as an executant instrumentalist, the scientific researches of which I have spoken, these and much else forged the chain that ended in Nourathar. It was a shaping that took long. It was not easy.

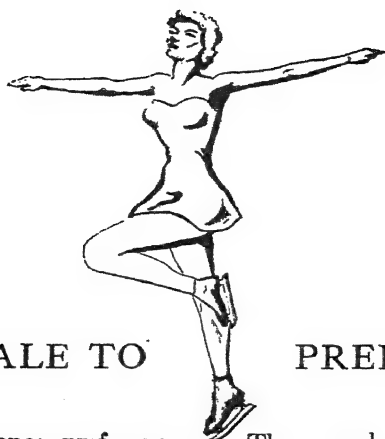
However, it is only now—it is only after these many, many years of work on this particular end sought after—thirty-six from the starting—that I feel I can perhaps lay a vocal finger on the *real centre of the labor's artery*. Strange that the final truth and reason should be apprehended only as an ultimate, not at the beginning of the work. One must marvel that it could lie hidden, as an existing thread throughout a long approach, only to appear at the end.

It is hard to express. I can but lead to it. Light itself springs perfect out of the root source of *the all*. Its color facets are the only reason that make the Universe visible to the eyes. The spectral ray is nearest in fineness of that which we can see to the spiritual essences which man seeks to express through the arts. It is more penetrating than the other mediums he so uses. In its fineness it is nearer than these to the philosophy of metaphysics or the metaphysics of philosophy, whichever you prefer. To use the miraculous beauty of the spectral ray as a means of expression *leads to still remoter sources of feeling*. This is logical to its penetrative and pervasive nature, to its pre-existence of the us.

Light is, indeed, a living scintillation. It is useful in causing an unsuspected understanding of both the outer and the inner mists of life. As fine art, it taps at the door of that which so far is speculative regarding the unknown. One of the purposes of the art must be *that of leading to a perception regarding the innermost of the whole, where perception had no expectation of ever being led*.

# V

## CHAPTER



## SCALE TO

## PREFERENCE?

**H**AVE you, perchance, preferences in the arts? Are you yourself, perchance, a pantomimist? a dancer? elocutionist or actor? instrumentalist or singer? painter or sculptor? In your mind or your doings do you give a precedence to one over the other? Holding these in a scale of esteem, have you choice as to that which lifts this one out of the common pool, rather than that one? Which of all of these offers the best grounds for accompaniment by play in rainbow display?

The range to the selection is vast. It is so whether wandering in one's imagination in and out of the arts as a whole or meandering through the field of specimen works within each one.

Though also of space, Nourathar will have a congenital affiliation with that expression best that is made subject to timing. That it can enhance the static is, of course, so. The ray may help beautify anything it hap to strike. Its use as an expression "is yet again another thing Mawruss." To do this it must link at the heart, not lodge at the skin.

### *Pantomime*

Of all the arts that I have mentioned, pantomime is the only one made through motion that is presented often within the inaudible. And yet not even here. It was early done, "while the chorus sang."

The word "shadows" obtrudes within the thought of pantomime and with suggestions of utter charm. Nothing is more exquisite, of its sort, than shadows picked out in complementary colors to those in play on the human figure: purples and greens and that obscurity that is related both to color and texture. They are something like a *holy* ghost, that feeds an equivalence felt also primarily within. Such shadows may be made to come variously and subject to the spectral play, as well as indirectly to the figurations of the pantomimic action itself—the posturings. These shadowings are very lovely. They are not to be had in the variety any other way than through practice of Nourathar and its Sarabet or their halfway equivalence.

The shadowing is incidental to the light expression, of course. Though these are artificialized in their color, they interfere not with the trend of the light expression. For here, also, it is the changes rung on general darknesses and brightnesses that are the chief tool of the ideas conveyed. It is these that make the unity, no matter what the interjection. The shadows are but a lovely enhancement to the chief end of the light-color play proper. Often they may be made to double the beauty of the pantomime itself.

## *The Dance*

A dancer there was. I am sorry I cannot say: "even as you or I." For I cannot possibly know whether you are a dancer and I—I would only have been one, had I had three lifetimes to fill as I wished, instead of one. This dancer had her vogue as the door was about to open from the past century into the present one.

Because she came just short of the year in which I started my researches into the physiological basis of rhythm or beat in 1900, which work I consider the foundation stone of my conception of using colored light as a means of human expression, and which led to it without break, I will touch on her work.

A little box holding a skirt and "some pieces of silk gauze was the seed from which her art grew." It is important to note here very *especially* that research as to some *inward goings* on within the human body's mechanism was the plantlet or soil from which the invention of my mind showed its birth. It was not stuff handled outside it. The difference is cardinal and basic.

She employed *colored* textiles for the gyrations in the stuffs handled. These were "*sometimes red and sometimes green.*" It was color of dye. It was not the ray.

She herself has put down a telling of her doings in her vocation of the dance. This was not done till 1913.

In reading the writing in a later day account, *datings are importantly to be kept in mind.* Watchfulness must stand guard for the overzealous, the perhaps forgetting phrase.

Many years, later the dance was made to enter a stage of expressing mental states and emotional values, rather than the figurations

for themselves alone. They became more than the strictly pictorial. They got ripe for seeking, at least, to match the inner contents of a Beethoven, a Chopin, a Debussy: it was the psychological, additionally to the physiological.

The master timing, conditioning the life within the body, and its motions commanded also the time successions made by the beat, the bar, the phrase, the section of the music, to which such movement was made.

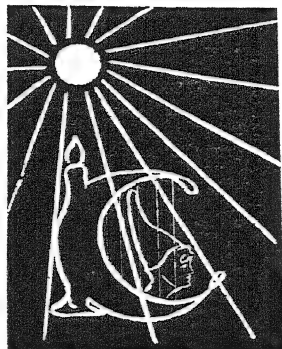
Light-color playing, as an art, making the third in the trio, is at the moment also used to triple the passing emotions, the feeling carried by the other two. Pulse of music was made to enter, hand in hand, with pulse back of spectral color play. The vision took away light display as spectacle or utility by the shoulders and put it out of doors. The phenomenon did bring about the fashion for illuminating vast masses of dry goods in store windows and emporiums both. An embargo has now been set on such. It is easy to guess why. Where big capital "sees the light" it shoves aside, and easily, what may stand in the way. I am overjoyed to see the first signs of ceasing to use three of the majestic color rays as "stop," "get ready," and "go" commands to street traffic.

The terpsichorean art, having thresholded two portals: (1) itself as the psychology, and (2) with music, is now awake to stepping within a third. It embraces also Nourathar. Where it was found my instrumental means, whether travestied or in condition more or less sound, for the practice it has now done this. It is said, by those who know, that the dance has vastly gained thereby. This can easily be believed.



## VI CHAPTER

### LIGHTING



### THE WORD

**L**IGHTING *the* word. Underscore *the*, and the drift is the better gotten. For there is a choice as to the picked out sense in vocal sounds that deserve being high *lighted*, and this *literally*.

Values and qualities link many, link indeed all things. But the word "operable" looms large in invention. It is not operable to stipple in, in separate colors, the unit sounds that together make a word. It is no more operable than to think featuring separate notes of the musical scale is the road to favoring the music made with a special lighting, for the understanding. The *line* of poetry, the *thought* within the whole are "horses of a different color." So, by "the word" above, I meant some special beauty of feeling and expression which the words together have been made to carry and convey.

As to age, I am tempted to repeat a compliment once paid me. He said: "Yes, you are like a little child and yet you are old, old as the most aged hills." I presume all are so. But, perhaps, the artist must have in him plainer this kaleidoscoping of all experiences of the past into the present. He must, indeed, feel in himself all the ages. He must be old, old as the most aged hills and yet be young as the present. It is the technique, the practice in any of the several arts that takes time.

Poetry, at its best for the light-color play accompanist, is like smell of powder at the war horse's nose. One wishes to spring at it.

"They buried her in roses—roses." Could this not be haloed most charmingly with a loveliest ray on silver? Who can deny this? There must be the right reciter, the elocutionist present, of course, and the fitting interior.

"How sweet the moonlight sleeps upon this bank." Silver the white to the right grade of the satin ivory and the "trick is won."

Now we go right through to blank verse and the coarser texture of the drama.

#### *The Drama*

The drama gives the best opportunity of all for distinguishing between a dual position: One is the natural need for sometimes mimicking that which the movement of the sun does to the world. It is daytime's light, and nighttime's light. The other is viewing the drama as distinct and separate from this sort of natural harness. Viewing it in a way in which it can suggest psychological subtleties for light play to support, irrespective of the time of day and the following around of the clock.

Stage sets, in recent years, have made brave attempts at breaking loose from the ordinary fixings and

the usual trappings of daily life. They have made the setting suggest the psychological mood. They have done this boldly and well. What matter if the public may prefer to see an individual in the act of brushing his teeth. The stage has given them subtler matters to look at. Deeper states to think about.

Trouble, the stage lighter has still in plenty. Everybody knows what a patience-sapping, strength-destroying job it still is in small provincial theatres and large ones both. There was the constant moving about of lamps, this, that and the other to attend to, rags, tatters and patches. And, without excuse, it still is a narrow hard road, yielding pitifully small result.

A great painting, by a great artist, hung in the salon. It was of Lady Macbeth. The very colors in her robe were made to clash. The tour de force in pigment was done as suggestive of the conflict of her mind. The color clashing was done so subtly and so well that these in themselves alone spelled the cross currents of the tragedy that surrounded her. So light color and its playing can add much to the inner worth of play acting.

All lighting needs of the stage and its drama would profit by use of the Sarabet instrument or even its travesties and imitations. All installations could be standardized as to lamp placing, as to color and all the accessory needs. This standardizing would be a great saving of every sort. The effort of the actual labor involved would be needfully lessened.

Courses in stage lighting are now made available in some colleges and universities. The very start to all these should be the primary spectral

colors and a scale for producing least increments of visibility. A miniature stage would suffice for the instruction, or indeed a goodly sized one.

To attain to this standard for universality is a large order, even for a big business. But it should be embarked on. Or big business should step out of the picture and let the art and its instrument make its way unimpeded. It can, it would have done it without benefit of immense money exchange.

It is a killing effort to wander in such an art without steering gear or compass. It is easy to get lost in the labyrinth presented. Besides floundering in a morass, a welter, a hodgepodge of this and that and the other, yields so infinitesimally little, no matter what the effort expended. The right apparatus is as a sword that cuts the Gordian knot.

The poetic sense, in and out of the drama, is discerning and sensitive. It requires as fine a handling of shade and tint as the subtleties the words themselves may hold and convey. The right instrument, the artist banishes much torturing of spirit that would bring to pass. The spirit that would show, that would press forward, is helped beyond measure by a standard playable means, preferably of the console type.

And the fact that the art of Nour-athar, and its instrumental means, has been placed on a system basis, where the first steps, the first pieces of apparatus are the same, no matter how small, how great its extension into the whole of the auditorium small, auditorium large, or stage small, stage large, makes this not only easily possible but incumbent on those entering the field of expression by means of light.

## LIFTING THE SONG

**I**F ANYTHING can lend an ethereal face as a meeting to that shown through spectral color, it is the human voice at its best. Should I be allowed to qualify, I would add: the female voice. Next to this would come the boy soprano, mischievous little imp in angel wings. There is no further reach to the excellence in timbre of these that must be otherwise equalled by the quality of performance through other means and perhaps not then. One cannot sneeze at the marvel sounds of violin, nor can one give a disparaging cough towards the 'cello. Should you have all the range to choose from in making up your light-color play programme but must restrict yourself to one, take the song. It can best claim ambition to rate a matching by color ray, call it color timbre if you wish.

Way, way back could there have been some common start that made for vibration as light, and vibration as melody in throat? For both from the one beginning? They sing so well together. Join them beautifully and well and man has created truly a new star onto himself. But then the more obvious the matter, the less one need talk about it.

Exquisite, *exquisite*, EXQUISITE are the great German "Lieder" of Brahms, and Schubert and Schumann. How vain for the crooner, the groaner to think his perpetrations will shove their kind off the

globe. As well set the stars off their courses. They are in the highest sense worthy. They make a high bid for being jewelled as we are telling. Indeed, they are themselves jewels in every sense of the word.

A light-color play done with them, if anything, can the more concretely freeze into your memory the delicious moments.

Try it. Try it. There are quite extraordinarily beautiful records made by the greatest singers. The polish, the finish they have put into the result makes so much plainer the way that light play with them should follow. They, all together, will bring an unexpected loveliness to the moment, while being swayed within the far-away of lost hopes brought back.

The basic keys to all the colors are degrees in darknesses and brightnesses. This takes a high place among its factors.

Conceiving the conception is made easy by this unifying base, where does the feeling call for in its darker, its brighter attributes? This is the question that controls. After that, the apportioning of the colors is easy or rather easier. Hues have much with which to meet the emotional timbre.

So Nourathar can help lift up further any song. It matters not what the special timbre, be this of throat or string, or columns of air, all qualities may be met by it.

## VIII CHAPTER



### COLOR TUNING THE ORCHESTRA

**I**T ALL came about quite simply. For those who had not done the work. The splendor of the light color was *the* thing to attract the human moths in right quantity. So they rightly thought, once they had been shown the how and the way. And so it came to pass. The immense "palaces" of entertainment were built on a gamble that this glory new would fill their seats. The largeness of the auditorium called for bulk in the music also and the orchestra was provided.

It may be that "big" business has no right to control where the fine, still voice of the essence of the animating principle calls for its showing. Two mistakes were made in these large ventures in the entertainment field. One was for the utility man to abrogate to himself the right to legislate within the domain of the requirements of fine art. The other was to start out with the most difficult end of the spectral color play subject. He should have known enough to enter into the door by a less ambitious beginning. To accompany the orchestra might be thought of as the ultimate of the Nourathar artist's hopes, one of his most difficult aims.

One could add a third. It is that of the obstructionist tactics possible to and waged by the stage workers' unions and, specifically here, the stage electrician. He may be a "perfectly good cat" in his way but he must, of necessity, stay within the limitations of his chosen artisan-ship. He should not have been al-

lowed to obtrude himself as super-artist and forbid everyone else the role.

The result was not an imposition of a manner. It was well-nigh catastrophic. Only the supreme beauty of the spectral ray apparition saved the moment. The color was appealing and attracting. Its manner of use was not far short of appalling in the travestying of that which it should have carried. Nothing so well showed that something really new and worth while was there as that displaying the lovely continuity back of the orchestra continued in practice, in spite of such misapplication of the heart of the idea, as the idea was conceived and nurtured by the inventor thereof.

The volume of sound, coming out of an orchestra of seventy or eighty men, more or less, is robust. It can be violent. In its way, it may be rude or brute in force. The spectral ray, on the other hand, is so constituted as to be ideal for creating an atmosphere that is closer to a feeling, a spirit, rather leaning to the mysterious in its nature. It is wrong to think of it or treat it as a counterweight to the orchestral mass. And so in this way, and for reasons brought about by the form of the apparatus made and used, great gobs of indigestible color were thrown about the orchestra pit.

The conductor of orchestral music has a task supreme in its difficulties. To hold this, many players into and under the leading of a single leash, is a task of the hardest. A close

\* Out of Beethoven's Ms. of the Moonlight Sonate. The light score symbol has been added.

second to this is the mesmeric hold he must have on his players. This he must exercise on his audience also. It is easy to break the enthrallment. A stray cat or dog, happening to walk across the stage, has been known to do it. Any unfitting play of light and its color is more than enough to put out of kilter his carefully rehearsed designs. An audience is not to be distracted from there, where the spirit of music leads it. It is to be held in the hollow of a hand. It is the hand holding a baton.

The surroundings, within which an orchestra was made to sit before the coming of Nourathar, were met to a degree. Its surfaces were lustreless and dull. Their elevation, or rather sinking in depression, was a crude one, unfinished and makeshift. And these faults have been now largely corrected since given a cause. As it is, its setting or framework for such warm, such exquisite beauty is one of the dubious. It is unechoingly itself. It is, as a home for beauty goes, unvocal as a cemetery.

It is correct that Nourathar be used as an excuse to rectify and to enhance all this and more. But the art must be handled as a fine art by an artist.

The two kinds of concepts made simultaneously to the eyes, and to the ears, both linking within the heart, both speaking to the head, must come as a harmonious one to strike fire within the viewing and hearing selves. They cannot be rivals and succeed.

I have the testimony of one famous conductor given to me that, properly done, even a little bit of it caused his audience to "rise up at him."

The right instrument first. The rest should not be so hard.

I have recently attended an orchestral concert of the finest. It featured largely so-called modern music. In these offerings I felt the art of music, of sound undeniably approaching mine of color. It was laying out all manner of tone color rather than an aim at tone design. In the process it gained also unto itself a profundity of content. It became part of philosophic reflection. In these two attributes also it neared the depths held in light-color playing. The variety made through "tone color" was beautiful and amazing. The light-color depths suggested were broad and deep.

I sat there and thought to myself just how I would meet it with Sarabets, and lamp choirs, and right background at hand. How beautiful a task! How partaking it would have to be of all the canons and rules of good, of great art.

Try and visualize the beauty as you can, you who read. There are the insensible changes within the hearts of jewel color and jewel color. There is the holding off when you must and should. The bit of showing hovering over and above the orchestra scene, there where the vibrations only reach up. The small "up" from the floor level. The gradual merging of one rare beauty into that of the other, so carefully done as to be felt yet scarcely measured.

How lovely to spiritualize the hardness of space! And this in company with the other softening elements. Add the glory of sense to the whole, of meaning—the inner sense, the feeling's outward reach . . . My sentences cannot meet the task. The vision is that of miracle in the making.

# IX

CHAPTER

## WHERE AND BY WHOM?

WHEREVER the arts that we have mentioned are practiced, may Nourathar find a home. Indeed, any place of concourse, of assembly, of company may be made its fitting dwelling place. The church, of course, were this not usually so poor of funds. But, then, it also has many willing hands. The place of entertainment—it is useless to enumerate. This end of the subject lies largely in the hands of the architect, the builder, the designer who can recommend. Perhaps educating these is the first line of attack. They should not need much instruction and training in the matter. For an architect is a close kin to the artist.

By whom is to be the playing? All that is needed is the bit of poet in one. The will to beauty. The urge to enhance and make loveliness still more fruitful. Of a truth no walk of life is exempt, of the pleasure there to be had for the taking. All have given the chief characteristics that are needed. These are of the within. Let us repeat: the will to beauty is the chief necessity.

"No great thing is created suddenly, any more than a bunch of grapes or a fig. If you tell me that you desire a fig, I answer you that there must be time. Let it first blossom, then bear fruit, then ripen." So said Epictetus. But in this matter so much has already been done. I think the point only of ripening the art is now upon it. Will not some-

one take a hand when I am gone?

The push need now be so small in comparison to the result. Was it of art and the artist that the following was said? "As being poor and yet making many rich, as sorrowing and yet always rejoicing, as having nothing and yet possessing all things, as dying and behold we live." Whosoever lends to this a measure of his life shall find it.

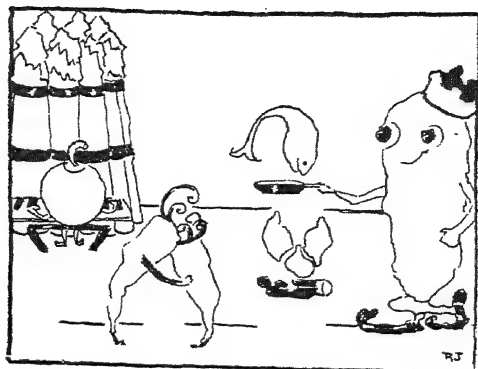
Who knows! If nothing else, he may help in strengthening that substance (?) found now, it would seem, only within the brain. It is that replica of being, which allows its re-seeing within the mind's eye. Speak of it as memory and you tell me nothing. Say memory is to remember and you say only memory is memory. There is some sort of a duplication or in what way could an act, experience or impression be reproducible, even if only in the mind's eye? If there, why not carefully foster its guise? In this direction may be the only way that we live after the body is gone. It might reach elsewhere too; even if only through children and children's children. Is there not a strange coherence and direction in a dream sometimes? Do not dreams prove a sort of ground that perpetuates as though the life? That which, at least, makes it seem pulled into shape without conscious officiating of the "I" back of the "me." The strings are pulled—how?

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"Oh, I have slipped the surly bonds  
of earth

And danced the skies on laughter-  
silvered wings;

## X CHAPTER



### NOURATHAR PROGRAMME MAKING

A HIGHLY practical and popular cookbook tells me that contrast is an essential of good menu making. The menu is to be a differentiation in texture: crisp or chewy, hard or soft, fibrous or smooth, dry or liquid. Some famous "food affinities," it says, "depend principally for their popularity on this opposition—ham and eggs, crackers and milk, pie and coffee." Contrast in temperature should not be ignored. Too many hot things "will give one the feeling for all the world like the air-tight stoves still in use in some localities." Difference in concentration follows. "It is among the most important factors," it says, and explains that "concentrated" is used in that connection in place of the more common expression "rich."

Even contrast in color in menu making, it announces, deserves thought. "Colorless meals are likely to be the besetting sin of American tables." A sprig of parsley, a dash of paprika, a strip of green pepper or scarlet pimento is recommended. Red, white and blue ice cream, it seems, is not acceptable even at a Fourth of July convention dinner.

Color-conscious, indeed, did "the real thing" in color—its spectral source beautifully played up—make well nigh all activities of everyday life! I do not except the dining table

as having profitted indirectly through this exploiting of concentrated color as a means of expression.

#### *Contrast in Programme Numbers*

Contrast can well be shown within the sequence of a set of Nourathar compositions. One may have its character pitched chiefly in dark-nesses. Another in brightnesses. These values will then be distinguished by lay within differing colors. And the color contrasts also can be taken into account.

Programme making is an art in itself. Made to accompany a differing medium, the programme may, nevertheless, be attended to with care as to its atmospheres of light-color play also. Decisions as to neither need be subordinate, one to the other. The light or the song or drama or recitation can sing together as separate words in poems do.

Arrangement of a series of numbers for performance on any one occasion calls for an opposition of situation, direction, aim or purpose in the separate pieces.

Whether the colorings of the soul, its deeps and highs are indirectly lent to the light play by a work handled in parallel with it or whether the thought is directly set down in color expression without roundabout attendance, the arrangement of the programme is always of paramount

importance. The attention needs to be stimulated and held under all circumstances. This can be helped by cleverness exerted in the sequences presented by the programme.

Let us, however, plumb its rangings, irrespective of what it may accompany. Let us suppose a programme made up of Nourathar numbers alone. One that is not an accompaniment to another means of expression. We will not then be leaning on any double understanding, "double entendre," brought about by more than one art simultaneously considered. For the sake of simplifying the points to be made we will treat of a programme made up of light-color play numbers alone, that are used by and for themselves alone.

To write on the assumption that a programme of Nourathar numbers of and for themselves alone is a "fait accompli" will help along the day of its arrival. It will cause the public all the better to think to themselves: Why not? And if to themselves why not for the general good?

We will take it for granted that the composer in the light art has tumbled to the fact that it is unwise and wasteful to cover the whole light-color palette in one number. That he has not visited into the red, white and blue in the one conception. Indeed, that he has not done this in all of a one programme in its whole or many of these. There is enough, and to spare, in the vast range covered by hue for every conception to have its own particular and different color and values face.

Some ideas that it may be elected to pose through light play may be dusky, mournful, gloomy, dejected, sober or sombre. Some themes will

be happy, joyous, blithe, gay, glad—choose your adjective. All of them may find their counterparts in the vision expressed and made manifest through this medium. Its beauty will carry, no matter what else lacks of the needed nurture.

Though there are but six primary colors, their combined charms span the eye's whole world of sight. Even in their subtleties, they convey great unlikenesses. To make contrast through full intensity color exhausts too quickly and unnecessarily the resources without due return. The chief leaning should be done on the darknesses and brightnesses. This is certainly so in the medium of light and its color.

From butterfly wing to sunset. From that but slightly illuminous to the last grey of dying day. All these the Nourathar artist has for the distributing among his programme numbers as well as within the selections, individually thought of or composed.

I have said that using light-color playing of or for itself alone is of the future. This is not entirely correct. The medium has already been used in public of and for itself alone for brief moments or two. Among such has been what is known as the "screening" of the motion picture.

Such light play may and can be invested with much logic that is the province of the exquisite, in thought and feeling. How far such meaning through aesthetic expression in light alone may be made to reach is, at the moment, hard to say. The growth will come to flower. A mother prophesies a full stature result, or why such labor and travail severe, to bring the result to pass?

A complete solo triumph for it in its capacity for consecutive expres-



sion may take a decade or two. It is too bad that the bloom of so lovely a flower has been delayed and crippled. In the meantime it has a valued place as parallel atmosphere accompanying other of the fine arts. It is a supercombination: a fine art in itself but coupled as well to others.

But the spirit incarnate of the spectral rays can well be corsetted into form of their very own. The timing, the sharpness of beat, makes a splendid ruled sheet, as it were, on which to order the light conception. The regular in the accompanying sound *guides only* for the sensing that can be vaguer through the showings of light.

Let us say, you have chosen a short simple musical work for which you are about to make a light score. It, in itself, may have many different phases out of which you may choose that particular one you elect to feature. It is something like taking stock of that which the apple on the desk may offer. Abstruse or concretely plain, the fruit presents much choice as to the variety in feeling it may transmit. Its form is round or spherical, is variously tinted. Further inward, there is quality in texture and toothsome qualities. Then it may have its own subtlety of taste and aroma. Still further within, it may carry the gift-of-a-child feeling—of a little son or daughter. It could carry a still more personal remembrance as of the joy you felt on lifting your hand up into the tree to possess it.

In something that way an old and adult art may give inexhaustible phases for matching by a new and adolescent one. And this will be the case in each individual work. And one cannot repeat too often that in

making your choices you will consciously and unconsciously be following interactions within yourself. Because such guiding interactions are held in common within the bodies of your auditors, they will understand the why and what of your interpretation. Should you frame a cradle song with a brilliant scarlet, it will be understood that this brilliance of color is in the nature of a framing of a contrast not of a slavish following. And all these matters count in the arranging of a programme.

If a color nuance for a complex depth, for even the contrapuntal, is needed, the player's way of giving out of the ray material will overcome the hurdle. The extraordinary, the beautifully involved will be met by his sense of taste and choice and *art*. He will be understood. The artist is master over and above the means. Who says the artist is not the master over and above the means?

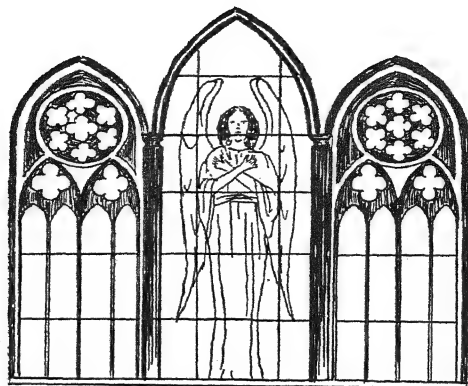
To my way of thinking there is one very beautiful and unusual novelty to the art. It is that of featuring the upper portions of space as well as the lower. Or, indeed, of featuring the space in any way one may see fit. To reach towards the dome in darkness and brightness and color continuity is in itself a lifting one's self up. To hug the lower spaces and even the floor has a completeness not, I think, equalled by or met with in the other arts. In this space singling, subject to time phase, the Nourathar programme is unique. The uniqueness has its own conception of play.

If your eyes are not completely blinded by just money, here is beauty ready for you to take. It is beauty in its very essence. I could say it is an inner sanctum of all beauty and for all beauty.

# XI

## CHAPTER

### THE SPECTRAL



### FOR FOUR HYMNS

I AM tired. Music passes before my mind. Much of it is intimately known by me from the core out. Poetry glides by also. It is difficult to decide what samples of all to choose, for denoting the way, of a setting in light. The Sarabet installation in a silvered chapel furnished an idea. Beautiful thoughts in music have been used in hymns. These are classic joys in the short, in the brief. They are widely known. Their use for exemplifying in this context could serve well.

With the hymnbook before me, I see how euphoniously they have been named. This also beckons one on: Eudoxia, Merriat, Diademata, Azmon, Cherubim and Seraphim. They remind pleasantly of the desire for a would-be world hereafter. The music of their syllable sounds appealed to those who forged them into names. By these, too, they aimed at suggesting that, above the everyday life. They reminded of beauty through their articulate vocal impulses alone. Are the great religious teachers, after all, just artists?

Some day. Yes, some day. Alas! or yes? or no? These most nice names will remain as but an echo of phonetic values. Values less the feeling and the labelling causes connected with them. It will be with them like the titles of gods and goddesses in the time of long-gone yore. Not their fault that by and gone these hymn

names will range in weight with mythology, or even the pigeon's "coo" and the cow's "moo." Further development of mind will eschew and renew. In the process they will be mauled. Their power of durability will be gone. *The tunes joined to them will remain*, as many of these were before them. Have they not been culled out of the garden of the works of the greatest musicians of all time? Sheer beauty of joined consonant and vowel sounds, as name labels for them, may have already lengthened the lives of the hymn words so bravely seeking to express the inexpressible.

The candles of the devout in churches have had to make way for the electric bulb. Lucky the world that it now has the means to make this light behave—and behave as exquisitely as poignant pleasure in the act can make it.

The first lines of hymns have a place so important that the numbers are indexed by these. So let us introduce the four I have chosen by their first lines:

No 1. "Holy, Holy, Holy, Lord  
God Almighty."

No. 2. "Now the Day Is Over."

No. 3 "Silent Night, Holy Night."

No. 4. "Joy to the World."

These very first lines in themselves suggest a contrast in the contents. They hint at that which we have written as being excellent in pro-

gramme making. Their light-color play setting taken, as a whole, could make agreeable and interesting sequence. It is true that the darkness, brought about by the sun, has a share in the light suggestion of two of these. If one may conventionalize a leaf or flower, why not nature's light changes, too? This is but for a fugitive moment, not for hours. But mark well that both the timing and the words *move according to an order made by the BODY OF THE MAN. It is inward in its contents.* It is not the suggestion outward, either of sun or moon or stars or indeed the utility of light to see things by.

#### Nicaea

And now, then, comes Nicaea for a dress of radiant light. It is a charming name for a lovely tune. There is a feminine quality about the name. One must perforce speak of a *dress* as of female gender. So we will think of Nicaea as of a gentle sort. It will be quite logical to display its words and music in jewel showers. Since this is but a sampling in brief, I will not copy the verses. They are well enough known not to demand this. Besides one could spend many paragraphs in the attempt at a light-play description, so quickly made in the practice. To denote in the slightest way will tell enough.

Nicaea is the fanciful title that has been given to the hymn sung all around the world as "Holy, Holy, Holy, Lord God Almighty."

The *words* of the four varying verses are to be followed. They carry a changing feeling within the one melody. The tune can in itself ring changes in its values also.

Since you, who are reading, are possessed of great intelligence, a light-scoring in briefest skeleton will

suffice. Fine art is a shorthand to that which in words it might take a whole tome to convey. We can but suggest, try as we will, the inexpressible that fulfills a light-color play accompaniment.

Four lines, each with meaning, converge into a single rosette. Why is the instrument of play there, but to tie these into single nodules both for conscious and unconscious comprehension brought about through light? The artist it is, who turns the filmy, hazy, indefinite beauty into a satisfaction nothing else can meet.

The hymn is robust. It is rich and warm. Apply the adjectives to color, the very best you can. The words impart a certain weight to the feeling. Set the light value you will play at its starting—through the instrument on which you are performing—neither high nor low. A straight, heavy line could be your first light-score jotting in the arc you choose. Put your hand on the right actuator, note where the scale shoe is to move. And, in this manner, proceed for the chosen ray unravellment.

#### The Color

The color? A full intensity color not weakened by tint would not be amiss. See that the right light source is energized. Red? Not utterly red. Red thickened by a bit of purple. That is better. Use the up and down marks for red—diagonal from right to left for purple. These, then, would also be marked down on the scoring sheet. And the proportions of the color quantities to be mixed will also be denoted. There are many different worlds in the red-purple or purplered.

"Though the darkness hide thee." Deepen into lower value. Your first straight line could bend down at its starting. How far? Since it is but

through the touch of a hand, it will be easy to decide. This will also depend on the content you would put into the grade of the darkness. Is the darkness to impart the idea of the ominous? or just the not properly understood?

*Now the Day Is Over.*

What couldn't true spectral color do with that which this first line suggests—"Now the Day Is Over"! What an opportunity for art to best nature so far as this sort of besting goes! The argument would use what the orchestra is as against the incidental and accidental sounds of wind and wave. It is poetry as against animal cries. It is the dance against the walking to forage for food. Here the artist has the true rays in unweakened quantity to do with. A silvered shell to spare, save, guide and show these forth. *Control.* Control within the space only in its way smaller than the Universe whole, to be counted on for mixing of hues. Not the accidental sunset leavings. Perhaps. And not enough.

"Now the day is over, Night is drawing nigh, Shadows of the evening, Steal across the sky." And then in the further: "Calm and sweet repose." "On the deep blue sea." "There, white wings above me" "When the morning wakens." "Pure and fresh and sinless." The light-score line could denote the color singing high, the color singing low. Higher, lower, this and that in sensitive nuance and approach.

*Stille Nacht*

"Silent Night! Holy Night!" The hymn name is kept in the German—How grateful one should feel to the German race for their exquisitely beautiful contributions to the world of beauty! "All is dark, save the light."

In its darkness and brightness dynamics this hymn in its light-color play suggestions leads well to the fourth and last hymn of the group: "Joy to the World! the Lord Is Come." Up! Up! as with the brightness of light supreme.

*Light Extension Within the Space*

"And heaven and nature sing." This line is repeated three times. Plenty of time to round little by little the corners of the eyes in further space inclusion made rare with a brightness and color increase. Lean towards the yellow of the spectral circle. Reduce both at the third verse. "No more let sins and sorrows grow, nor thorns infest the ground." Here, not the prettier is suggested. These last assuredly have a way of stopping progress.

There must be no suspicion of the jumping jack, the upstart in roughness about such hymn accompaniments. Insensibly must the artist lead his shadings with their tints and colors. The shadations carry the lion's share of the sensitive play. Do not forget this. The shadings are so infinite. The colors are so few in comparison.

These considerations may take account of every syllable, every beat, but very subtly, very carefully. The increase in radiation here a bit more readily perceptible, be there greater quickness of feeling for the moving. The reduction a bit slower there. The glowing towards the violet, towards the rose, slighter the more leisurely the fervor, stronger the sturdier the impulse.

Make your light-score short at first. On this any change of heart or mind may be noted further. Repeated performances will bring their own suggestions and improvements.

# LIGHT SCORE

for the 1<sup>st</sup> Movement - MOONLIGHT SONATE by Beethoven  
for use with the Sarabet Light Player

by MARY HALLOCK-GREENEWALT

M. M. 56:•

Blue Red Green Purple

No Erg. No Erg.

Copyright 1919 by Mary Hallock Greenewalt.  
Patent Applied for - Mary Hallock Greenewalt.

The First Light-Color Play Score ever made and sold in the entire history of the world.  
Reproduced out of the author's Patent No. 1,385,944 for Notation for Indicating Light Effects.

## XII

CHAPTER

## LIGHT-SCORE THE FIRST

**H**E HAD the reputation of being a crotchety old patent examiner. "Examiner" is the name given to those whose duty it is to pass on a patent application in the U. S. Patent Office. Indeed, one attorney confided to me that he "wouldn't have any dealings with him," that "he had never been known to allow a claim." This "crotchety" one was to pass on the claims covered by my application on light-scoring. At the time the subject had not progressed so far as to label the subject matter by this hyphenated name. It was called "Notation for Indicating Light Effects." This resulted in my patent No. 1,385,944.

"Is there any mark in your notation identical to those made for music?" he asked. "No," I answered promptly, and there were none. The ogre (?) allowed me the basic claims. I recommend the perusal of this specification and its claims. It is said to be a remarkable one.

Citations had been made in the back and forth of patent office actions, on the above subject matter. These few made note of one or two who by strange quirk of mind sought to make a note of the musical scale put down on paper stand in its action and way as identical for those showing forth a color.

The list of those, who thought of sound and sight as the very same in their results, seems to be old and not restricted to one or two. It started somewhere, I believe, in the 16th Century when a Jesuit priest fastened strips or ribbons of colored paper each to a string that separately

jolted up as each note of a spinet was struck. Since then quite a few.

The best known of these completely faulty efforts were made many years after the trend of my labors were well known. In 1912 I sent premature notices of my work, looking to light-color play, to the large centres of learning all over the world. This, I take it, started up a renewed rehashing of the same old error. So we have a Russian composer, an English inventor, an American electric utility man and a dancer treading in, some seven to nine years and more after my inaugurating the activity, and treading in, in a way that could be expected from those not the originaotrs. Not for one instant did I think of the art I had in mind as analogous to the physical nature of musical notes and their combinations. Indeed, I had not thought it possible that such wrong vagary could exist. I had already done my researches into the basic reasons for one having a sense of beat in common. This proved a true fundamental.

It interests me to take another look at my first light-score after all these years. You will find a cut of it on a page preceding. It is light-score the first, certified to enough. You will note that the copyright of this particular score made to accompany the first movement of that sonata by Beethoven, known as the "moonlight" one, is dated 1919.

The patent had long been in prosecution. Six months may go by between each letter to and letter from Washington. The first instru-

ment of console form for the carrying out was in existence and demonstrated publicly by me in 1919. I am surprised in looking this first light-score over to see how far ahead it looked.

The metronome mark at the head of this musical work is slow as pulse is likely to be in the gloaming. M.M. 56 = . . . The pulsing goes by, marked by dots identically distant one from the other: The rate stands at 56 beats to the minute. This is, as you will note, a shade slower than the second. Such fine shadings are well felt in matters of art and by the superfine human organisms of the man, the woman that practice art.

This very metronome mark for play by light speaks eloquently of the thinking that preceded this conception of mine.

The colors have their marking denotations within squares. This is not a bad idea since the number of the lines for one or the other could denote the secondary or tertiary or beyond. In this score the whole squares were thought of as the ciphers of a millilambert measure. It might be found good to hold on to this expedient. This is more a matter for the manufacturer of the instrument, not its user. The full intensity color combination is a part of this first score. It begins, for example, with two of blue to one of green—not a bad combination for twilight hue. There are eight dots vertically placed between the staves. The scale governing the play of darkness and brightness I had at that time divided into eight sections.

Note the changing of the color while decrease and increase of intensity were taking place. Also that there is a flux denoted within the

darkness and brightness lines. The light amount was of actual millilambert measure, as I could guess at it. It did well for the basic ground. There are little symbols standing for light sources. These were for denoting the definite additions in the white of the light. At the end, the light rests while the sound continues, till it also dies out.

I remember only now that the squares took the place of ciphers in the millilambert quantities. Three squares followed by a two meant two thousands of a lambert and so further, as ciphers would note this.

In the very nature of light-scoring it may often lie within the best taste to make the light-color accompaniment simple and broad. All possible minor details would, in that case, not be taken account of, or rather would be ignored. At other times, the *fine* discrimination may be a label to an achievement superb.

It takes more than a few sentences to make explanation. To sit at the instrument shows quickly, and without trouble, that which took so much labor to bring about.

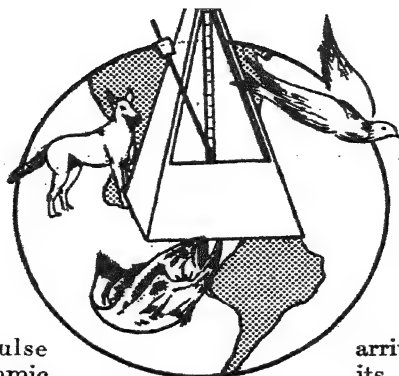
Throwing light on a restricted screen seen in a small space in front of one ignores the widely seeing character of the eye. The attempt at appropriation by the rectangular surface of the motion picture screen must be considered one of such several attempts that sinned in that way.

The fundamental nature of the eye, its capacity to see at widths, at heights, is a conditioning part of the fundamental nature of Nourathar. It is one of the many that gives it capacity to undercut out so much that is narrower and not of as deep an import.

# XIII

CHAPTER

## The Origin . . .



## Pulse Again?

**WHAT!** The pulse origin of rhythmic beat again? It is not to be helped. The songs of religion reminded me. They have brought to my mind the hymnbook I chanced upon while doing my researches on this subject of recurrent stress. The collection was large with all the songs of praise that are usually heard. They ran into the many hundreds and, marvel of marvels! *each was given a metronome mark.* This was a windfall at the time for me. There were so many of them. They were so short. Different movements of musical works required so much leafing over. Should you not know, the metronome mark gives the clock-time rate within which the rhythmic beats transpire. Behold! These all stood within the cycle of the normal average pulse considered in its daily variations.

In a *Handbook of the Hymnal*, page 503, there occurs the sentence: "Though marked 4/4, it (Eudoxia) has a grouping of only two *pulses* in the bar and will best be sung in this manner." Please note the word "pulses." It distinguishes between four quarter notes to the bar and the real stress of two half notes. This noting is of importance. The splitting up of the beat was well calculated to hide so important a significance.

This *Handbook* was published in 1935. This date is just thirty-five years after my researches on this subject began. The time taken in the

arrival of a labor, true in its nature, can be long drawn out. This slowness

of the permeation of an idea has its interest also.

I have recently come across another item, making similar use of the word "pulse" as meaning the true measure of the stress. This was in a beautiful work on harmony.

This calling in of the word "pulse" for the unit of beat is a proof that my findings have carried weight and been accepted far.

In poetry there has grown still another hide and seek. It lies within a variety of names for metres that are, in fact, identical. See how many these are: Iambic, Trochaic, Dactyl, Anapest, Choriamb, Elegiac, Salves, Alcaic, Amphimacer, Cretic, Amphibrach, Tudor, Spondaic, Sapphic . . . You will cry: halt! halt! But not yet. There is also: short measure, double short measure, common measure, double common measure, long measure, double long measure, and that which change in number can add.

And all these are but variations on the *shört lōng* or *lōng shört*.

All are in their ultimate but a *lúb dúb*. Sometimes the "lub" begins. Sometimes the "dub." Two syllables may occupy the span: *lú-ub dúb* or *dū-ub lúb*.

The measures mean only how many of these. They do not disturb the similarity of the kinds. The number of syllables to a line are counted



and then the use of numerals: 8.7.8.7 or 6.5.6.5. Though one line have more syllables than the next, the pause is likely to make both equal in point of time. It is this: the *pause*, that makes simplicity out of that which at first glance seems unequal and involved.

So there is a common pulse within all these choices and activities. A little below sixty beats per minute to a little over ninety they range per minute. Like "The Captain's Lady and Judith O'Grady," all these metres to melodious sounds "are the same under their skin." And as we have seen there is the literal to "under the skin." Is not the *lúb dúb*, *lúb dúb*, *lúb dúb* of the systole and diastole of the cardiac action of the heart impulse under the skin? And does it not transpire from a little below sixty to a little over ninety on the average? Is this not a time form within the stress defined?

I know that there may be a many dimensional, even vibratory motion within and back of activity within a muscle; but these, it is quite plain, become tied or unified into a one dimensional motion of blood-stream surging at base of brain.

The many dimensional gets resolved into the three dimensional acting on the heart. This again becomes two dimensional at base of skull. One could go further and say it suggests a forwardness in space to our sense of time that may not be such. The brain holds poetry and music in a common throb against its skull. It is so, just so often, not too much more, not too much less. In a manner of speaking, all these are hitched to this suggested time elapsing, as I have said, with a fixity of habit not too fixed. This policeman of recur-

rent rhythmic stress within us shows no favor here only to modify it there. It is universal. It has been. Is now. And evermore shall be. And, *the attention cannot be held without accord to this manner of rhythmic sense*. Too slow and one must cease to look or listen. Too fast and the sense cannot be recorded.

The "lub dub" pattern, within the unit of stress, would not be followed in light-color play, except as a possible twinkle ushering in the light quantity. Here the nature of the eye sets its foot down. Such twinkle might be used as a decorative bit with a low intensity light—as a momentary decorative touch or diversion. This would be something as the traffic light imitation was used in the modern day symphony of which I wrote. I have noticed that even a flicker in a 100-watt lamp at several feet distance away, made through the wavering of a switch button that is loose, is painful to the sight.

The ways of light are, of necessity, different from the ways of sound. But in Nourathar the light manifestations are tied, nevertheless, to the revelation that is man.

The pulse of beat is in it a silent partner. It is just as important, however, in policing the orderliness of the light successions. It does not intrude, except in special cases but in so far.

Look at the sample score, and you will see what is meant. The goings and comings are placed in order by the beat. The light is not the actor obedient to every individual moment by stressing it. It glides past these. But they are there just the same. The feeling of them exists. They hold the attention that it may get the light sense.

# XIV

CHAPTER

## THE STRUCTURE IS OF A ONENESS

THE structure of this whole, that being written about, is of a oneness. A kind of universal logic is within it. It has been carefully and painstakingly created and reared. The conception had the right with it. Its larger phases have been covered, as well as the smaller ones. It is carefully described in these pages. Its value has been proven.

Take out any one block of this fine art structure and the idea of a new means of fine art expression may be miserably endangered. Tamper with it and it will be irrevocably lamed in its objectives and practice. Its power will be curtailed. It will, perchance, go on for a while—if deprived of essential parts—on crutches, misshapen. But its equilibrium of being will be imperiled. You cannot take away its head or heart and have it continue to live. Its life will be snapped short and the reason will go unguessed. It will have only its novelty day, to humanity's loss, and will promptly put on a shroud and hie itself away to the scrap heap and the discard. Right growth cannot be tampered with and continue to live.

Other visions have been killed. Some have met such disaster after being thoroughly established at their best. Weighty ones are at the moment in process of being cheapened, made dangerously common. Their semblance is being changed into one the world will cease to care for. Such sad traces can now be remarked in the way music, the drama, and other activities are being dragged down.

The commonplace and cheap are being plumbed for.

Nourathar has, at the moment, an enviable popularity. But this is largely thanks to the beauty of the medium used. Just this can run it into the ground. It is a going on the outside looks without much bother about the inward treasures. And the outward of it is shown crudely and in the bad of taste. Even that will wreck it.

It is a large world. But behold it fashioned to and for the hand. A competition was started once as to who was the laziest man. "I," said one, "was reclining under a tree bearing the most luscious fruit. One fell into my mouth and I was too lazy to eat it." Be not like this man.

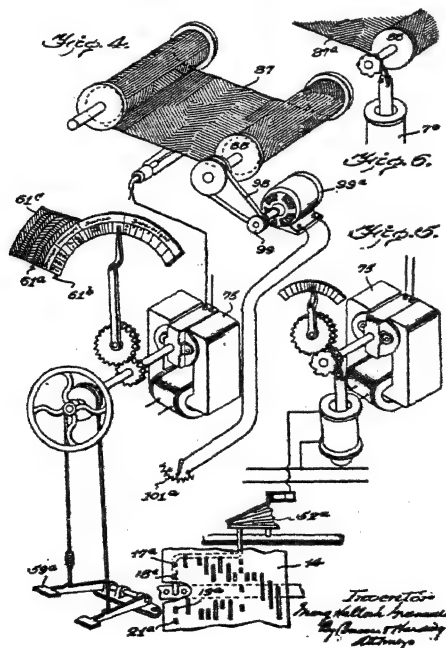
The fruit will taste supremely good. Take time to masticate it.

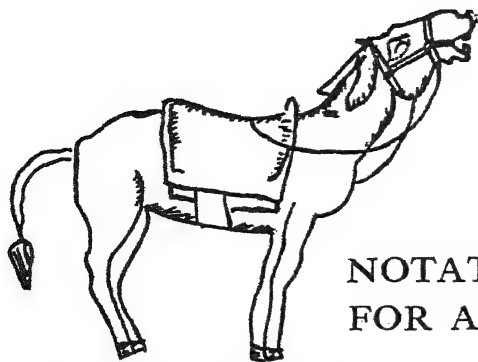
But if the beauty and joy held in practice of fine art be not enough, remember other valuables to be gained. Sniff not at its worth to facts strictly scientific. Look how even this labor carries nuggets for the baskets of the eminently learned—those dealing in facts, laws, proximate causes and the adding to the sum of universal knowledge.

Witness one sample herein all too briefly set forth. See how charming is the route traversed by the sequence as follows. It is accurate fact linked to accurate fact, a reality to reality, the definably true to the definitely measured. Well then (1): Practice of the different movements of the Quintette by Sinding, paced by metronome exactness, led to the fact that all the movements had a sameness of beat

in their timing. (2) That all music stuck to the scope per minute stresses in the leeway shown. (3) That poetic verse followed this timing also. That it also was based on the same recurrent timings. (4) That this timing was that of the human pulse. (5) That all animals in their daily expressions showed traces of this selfsame pacing centrally suggested if not controlled. (6) That it was the rate of recurrence of all blood flow of the circulatory system itself that brought the similarity about. (7) That the pulse rate of all animals was alike in its rate. (8) That the preorganic, that movement

May 28, 1929.





## XV CHAPTER

### NOTATION IN CRUDE FOR APPARATUS CRUDE

**A**N ABSTRUSE? subtle? deeply philosophic line? It caught my eye in a daily dishing by a New York columnist. The serving was headed: "The New York Scene." Or was it "The New York Symphony"? The line? "The usher in a spacious movie house lobby who stands stiffly in the centre of a luxurious rug *with a spot-light* on him. Wonder if he feels like a star or a sap." (December 4, 1940.)

This also under "Hero of the Week Department," *Evening Ledger*, October 30, 1940. "Orchids to the electrician who handles the spotlights," sic. "He understands an entertainer's problem. While the singer was going through her act in that swanky-panky ballroom, a party of so-called 'swells' set up a noisy disturbance, howling at the antics of one of their party . . . The singer warbled on . . . ill-bred boors wouldn't quit laughing loudly . . . The spotlight man (!) sensed the singer's crushed mood . . . He moved his spotlight from the singer and focussed it on the annoying party. He held the *accusing glare* on them until they shut up—audience applauded the electrician's talented (!!! sic) thinking—and then bravo'd the singer. The colyumn hopes the management commended the spotlight man." But such straws denote the light expression wind blowing in the direction of night clubs, of the outermost confines of cheaper houses of entertainment.

The "spot" used to pick this or that individual out is a part of the general light consciousness brought about indirectly through development of Nourathar. Its coming is particularly significant, used as it was and is as a lighting of the way for the conductor of an orchestra to his desk on the rostrum from the wings. For light-color play required such darkness as prevented the seeing where to step. This was, it is to be noted, outside of affairs made on the stage proper.

The spotting of musician soloists and other individuals followed, as witness the above. *It was often found not easy to do more than just that.* It came as a dingle dangle hanging on to the skirts of a new and noble art. It was used, as we see, to *underline*. Perhaps a performer, perhaps an usher or a rowdy gang.

Light-color play began to arrive properly with my use of a neutral colored reflective surface as foil for the play. This point is entirely significant in any argumentation as to priority. And even this is to be taken viewed together with still other points.

A defined entity as Nourathar did come to me full fledged, without antecedent.\* There was no embryo tail, no embryo head.

#### *The Fountain*

A very much restricted splash of color at the base of a water spray is

\* See the Who's Who and other works of of reference.

all I saw. This was when I went to inspect a so-called color fountain that *it was said* had been made after the century was well started. This was mentioned as prior to 1910. It was known as the best in existence. There were a number of sprays all placed widely apart. The color hit a part of the base of these in a diminutive, pitiful bit at a point far away from the next. There was no intensity change.

Switchboards have been inordinately multiplied for handling light of necessity wasted. No matter if it is this or that a *crude* edition of the notation, recorded in this writing, may be used for the showing even by these. Any something is better in this case than nothing.

The "movie" conductor loves the brilliant ending to the overture played. And why not? A buzz from his rostrum desk and the white light of the house is simultaneously brought up to support him. It doubles and trebles his applause. He can now scarcely do without it.

He could explain briefly to the backstage "puller of switches"—so this one has gotten to be called, and vastly did light-color play increase his wage: "Mike, or John, or Bill, the first time I buzz it is for blue, the second time for red, the third time for green and the last time for white. I will make these color marks on this sheet to remind you.

Your lever handle is limited to a shaft an inch in diameter. The muscles of the hand cannot discriminate within such a space. It neither fits with the technique of the muscular, nor with the technique of expression. But you can manage to pull the white light switches to surround the field of vision with the

maximum, at the last of my ending chords."

For makeshift paraphernalia such notation would be simpler and quicker than attempting description of what was needed by word.

Much of the varied attempts at cheap and easy color lighting in the "Palaces" of entertainment may be represented by a "null, comma, null"—two ciphers with a comma in between. The be-ragged and be-rigged spotlighted usher can well stand for the comma.

Wholesale. Wholesale. Wholesale. Are there none left sufficiently quiet, sufficiently rested, sufficiently *sane* to give careful, meticulous, painstaking attention to detail beauty? And mass sales be damned? At the moment I seize on the damage done through the one exemplifying that of Nourathar. *That* I know about. In this travesty of beauty, color rebels, taste rebels, result antagonizes and to human sense and feeling insult gross is delivered. It is the laziness of monumental greed.

The right apparatus for a beautiful vision may be effectually damned by the labelling that: "It is not a manufacturing proposition." It is true that in a hodgepodge, hit or miss for "quantity production," superlative fineness must go. This lack of wanting to put care into the instrument can stop a quantity production in attendant concomitants. These can be of filtering mediums, of printed light-scores.

A comb for the hair would not be manufactured with most of the teeth missing. Not for this art are walls full of switchboard levers, wedged along a common shaft of smallest diameter. Has not color more teeth than a comb for the lady's hair?

None of the integers may safely be dropped in the matter of human expression through hue. Christmas tree-like light bulbs won't do either.

Such "sops to Cerberus" do exist. They are used. I have had to stand powerless by to see a very Frankenstein of cheap manufacture, cheap misuse come about. It is a crime to what should have been an exquisite furthering. Can the kaleidoscope of time ever see the harm undone? I hope there can come a rebuilding from bottom up. And if this is done, the money gain may be still greater. The sale of a right instrumentality of widespread extent will maintain an industry that a travesty of itself will destroy.

They may scream and roar and tear their hair, these groups placed in a suitable position to foster conspiracies of gain, in their favor, regardless of how and through what gotten. The fault is with them. When a blanket gets too suffocating, it gets thrown off and this in spite of the roaring and screaming and tearing of the hair of those that foisted the blanket. That is, if luck is with the world.

And the tendency is, of course, that when one conspiracy gains a quasi-monopolistic control, it will join hands with the controlling force of another and still another. There is no stopping the extent of the harm. Especially is this so when the real objectives are carefully hidden to view.

Quick money gain has too often catered to the lowest. It got its governing influence over an unsuspecting part of the public till too late. Too often the fine has been ground into the dust. The high, that which should have led upwards has

been turned downwards. Example after example may be cited. The treatment accorded this fine art but focuses the attention on the extent to which further parallels can go.

Take the holiness of the kiss—thrown about as pearls before swine. Yea, and till the stomach turns. The mystery of an infant's birth used as part of a child's amusement. A *controlled* means of universal communication to hidden ends. An owned press not everywhere, indeed rarely, calling its soul its own. The knowing will neither listen or read but for the accidental fragment that happens to steal its way "between the lines."

They cannot only make a fine new art still born. They can all but ruin an old and established one.

This book then explains light, not used for purposes of illumination to see by, but to feel through. It is light and its color caused to create a new means of fine art expression. Such expression is made also through its shades and tints as well as its black and white.

The gamut of emotional values may through these be largely suggested. And in such way that others may feel and understand the player's intentions through his play. The art has been successfully practiced and demonstrated. Success has been wrested out of a difficult situation. The art has a standard instrument made for it. It has a comprehensive notation for historic record of the plays made.

Do you wish to become an artist within its artistry? Have you, perchance, a financial aim that would be helped by use of the art? Is there at least need for you to know more of the subject and its interesting ramifications? This record will help you.

# XVI

CHAPTER

## AN AID TO HEALTH?

**I**F YOU are "from Missouri" I presume you will want "to be shown." I cannot "show you" that light-color play as herein described, that is, used as a means of fine art expression, is an aid to health. There are some notings that might hold your attention, since they refer to the point. At sight of beauty there is a breath extra deep. Even chills of delight may lend a physical stirring to a body too inert. There can result tears of relief. The heart may beat a bit firmer.

Tears. Strengthened heart. Physical stirring. Breath. These are a part of body and its health conditions.

Newspapers, bent on aiming for a circulation as complete as possible, play up subjects of health interest "to beat the band." General health that naturally is of interest to everyone would seem in need. Fine art is another way, it seems to me, to foster it.

One can be glib in speaking of soul. The subject of soul can be as glib ice, too.

*From bone to breath.* FROM MUSCLE TO TIMING OF BEAT. Surely to keep friends with the scientists, it is right to believe that there is a still greater attenuation that comes still nearer to maintaining the unbroken link from matter to spirit.

There is no immediate necessity to skip from the material step to the spiritual one. At least for as far as we will go. I do not say the reach cannot go further. Of course not. But, in my opinion, the artist's knowledge could have an important say in the matter.

The quanta theory of light links light to matter. This theory holds that light consists of minute particles of matter bombarded off into space. This could explain, in part, that sort of tropism—the tendency of a living thing to turn or move in response to an external stimulus. For phototropism is a turning towards the light. Why should a leaf or plant turn to the light, if no advantage to its material self is gained thereby? Furnishing minute particles of matter to it by light would explain the seeking.

It would furnish a reason for holding that light could, would or should, if not remedy, at least help health. That it is permeable to tissues in a manner of food not otherwise attainable to them.

There is reason to contend that colortropism goes phototropism "one better" in its response effect on the body. Certainly the permeability of one spectral color ray will differ from that of another. There is degree to color. Degree then exists in the effect and feeling they transmit.

Link the material truths as to the medium to the seen and felt effects of the medium's beauty of use and it must be held that beauty is a stimulus to the body. And, if only as a stimulus, it is a prop of health to it.

The viewer does not simply apprehend by obscure feeling. He is *materially* benefitted through these sensings.

There is something also in his heart beating in three quarter time *in company* with that of others, as at a performance before an audience.

Would this also be a strengthening of the impelling push of his life? It should be a helpful jog to existence through joy to see a Debussy conception accompanied in "strange" greens and blues, a love song in tenderest rose.

There is no lack of big proof that this art has shown an attracting force to vast numbers of people, to throngs of them. Even as a light source draws gnats. And these have lent themselves to assembly, in a concourse for the purpose, of lending themselves to the enjoyment.

There are those suffering from mental ill health who are in a constant state of excitability. They talk or make noises or move constantly. There are those who are in a continuous and deadening stupor. I myself had been playing the programme on the light-color play instrument before some of these. The instrument stood at the front. It had been installed on the grounds of a hospital for the mentally ill. The programme was being carried out for the inmates. I happened to turn my head to look for something at the end of the hall. I was amazed. I was delighted at what I saw. The very faces of those suffering from a

numb insensibility had taken on a look of astonished-out-of-themselves. A delighted, pleased interest showed distinctly on their faces. The dull, motionless, lustreless, unvaried and unresponsive attitude had changed. What they saw opened for the moment at least their outward and inward eyes.

There was a quieting influence on the others. It was to me conclusive so far as it went.

If there is a beneficial effect on the sick, why not a help to still greater well being on those who are well? I myself have heard individuals in an audience literally gasp with delight at the first sight of a light-color continuity spread across their seeing field of vision. Full breathing is a factor in health—inspiration and aspiration both. A notice of such beauty by the lung carries its proof.

A new beauty is still another reason for desire to live. It grows a still greater interest to carry on each one's own brands of effort. It is a strengthening of the heart literally. And it may be argued that through Nourathar this is done in ways that are concrete.

The fine art of light-color playing, we must hold, is a prop to health.

#### TO THE DILIGENT ONE

This card of merit was awarded the author when a little girl at school.















الفن  
الذي يتي عليه  
الجميل المعبود  
عز وجل  
(نور عطاء)

(نور عطاء)

عطاء النور

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